Digital Video Recorder

User's Manual

960H 04/08/16

Thank you for using our product.

1. This is user's manual for analog 960H 4ch, 8ch and 16ch DVR(Digital Video Recorder).

2. This manual contains product specification and introduction, installation guide, operating guide and other necessary matters for easy understanding. Users should read this user's manual carefully for proper use.

3. Contents in this manual may be changed according to the specification change and feature improvement without any notification.

4. This user's manual shall never be copied without prior agreement and violating this may be a reason for legal punishment on piracy.

5. If there is any incorrect or insufficient content in this user's manual, notify it to Customer Support Center.

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CH1. Product Introduction

1-1. Product Contents

After removing packing materials of this product, check whether all following contents are included.

Main Body (DVR):
This converts the analog video and audio signal to the digital signal and saves on HDD.

Adapter:
This 12V adapter supplies power to the product.

MOUSE:
This is an controller for convenience.

Program CD:
This contains the User's manual and Client Program for DVR.

Remote Controller:
This is an IR remote controller for convenience.

Battery:
These are 2(two) battery for the remote controller.

1-2. Specifications

Model			960H Series		
			4 CH	8 CH	16 CH
Video	Camera input		4 BNC	8 BNC	16 BNC
	Available source		Composite/960H/Mixed		
	Output		1 HDMI+1 VGA (simultaneously) / 1 Programmable SPOT with OSD		
Audio	Audio input		4 RCA		
	Output		1 RCA		
Sensor In			4 (NC / NO)		
Alarm out			1 relay		
Operating System			Embedded Linux OS		
Display	Speed		Real Time		
	Resolution (Pixel)		1280X1024, 1280X720, 1920X1080		
	Split screen		1,4	1,4,6,8,9	1,4,6,8,9,13,16
Recording	CODEC		H.264 / JPEG for 3G, Dual CODEC		
	Resolution (Pixel)		960H(WD1), D1, CIF, Mixed		
	Picture quality		4 steps (Super, High, Medium, Low)		
	Speed	NTSC area PAL area	120fps@WD1 100fps@WD1	240fps@Half WD1 200fps@Half WD1	480fps@CIF 400fps@CIF
Playback	Display		1,4	1,4,8,9	1,4,6,8,9,13,16
	Search mode		Calendar, Event ,POS , Panorama, Thumbnail		
	Speed	NTSC PAL	60fps@WD1 50fps@WD1	120fps@Half WD1 100fps@Half WD1	240fps@CIF 200fps@CIF
	Fast/Slow speed		Normal, REW & FF [recorded speed x2, x4, x8, x16,x32,x64,x1/2,x1/4], Frame to frame, Pause		

1-2. Specifications

Model		960H Series		
		4 CH	8 CH	16 CH
Network	Network Interface	Gigabit Ethernet		
	Speed	15fps@WD1	15fps@WD1	15fps@WD1
	Protocol	TCP/IP, HTTP, DHCP		
	Application	Windows 2000 / XP / Vista / 7 / 8 (PC Client system& IE)/MAC		
	Web Browser	Internet Explorer, Safari, Firefox		
	Smart phone App	CatchEye : Android, iPhone for live and search		
Backup	Interface	USB 2.0 X 2		
	Backup device	External CD&DVD-RW, Network, Thumb Drive		
The number of HDD		1 SATA(No capacity limit ; 4TB of more)		
Function	•Full GUI with alpha blending			
	•Individual setting of resolution, frame rates and picture quality			
	•Instant Replay			
	•Digital Zoom			
	•Mouse Control			
	•Weekly scheduler with holiday by 10 minutes setting			
	•Covert, Disable and Private function of cameras			
	•Motion Detection with 352 area setting			
	•Relay alarm output			
	•PTZ control by RS-485			
	•Daylight Saving Time and Network Time Setting			
	•Multi User Authority up to 8 Users			
	•Deinterlacer upon live and playback			
	•22 languages with full graphic			
	•Individual Network port setting			
	•Auto Deletion			
	•Import and Export the configuration			
	•POS Interface			
	•Dual CODEC engine for independent video transmission			
	•Interactive setup via network			
Others	Power Consumption	24W		
	Operating Temperature	5 ~40℃(41~104F)		
	Relative Humidity	Maximum 80% non-condensing		
	Dimension	300(W)×210(D)×48(H) mm		

1-3. Product Characteristics

1) High quality picture
This enables recording and playing high quality digital image based on H.264 compression method.

2) High reliability
With Embedded hardware and software design, this maintains higher product reliability.

3) Simple usage
This allows users to use it conveniently by placing control buttons similar to existing ones on VCR, and users can easily learn the usage.

4) Pentaplex System
Pentaplex System allows live, recording, backup, networking and playback simultaneously.

5) Selectable recording setup
For recording methods, users can select the frame rate, resolution and video quality individually in order to be appropriate for user's environment.

6) Remote monitoring
With using exclusive line or Internet network, you can search or monitor recorded images remotely by installing exclusive client program on Windows PC or Mac.

7) Backup
You can backup with a versitile external USB devices.

8) Audio recording
You can record 4 sound inputs simultaneously. Moreover, you can listen to the sound in search and live monitoring and play mode.

9) Various recording methods
This provides convenient use with manual recording, recording by dates and days, hourly schedule recording, sensor and motion detection event recording and others to enable unmanned monitoring.

10) Various total monitoring features
You can cover any security scenario through various sensor inputs and contact output control.

11) Display information in easy-to-understand information method
This enhanced convenience of user by displaying information (date, time, recording method, recording frame number, HDD capacity and others) in monitoring, recording and playing mode in easy-to-understand way.

12) P/T/Z control
By built in RS485, various P/T/Z cameras can be used.

13) Dual CODEC for video transmission
DVR can send 120 fps (based on CIF) regardless of the local recording and viewing setup regardless with recording setup.

14) Web browser support
You can monitor and playback the video and control the PTZ camera by internet explorer.

15) Built in S.M.A.R.T.
You can automatically check the health of the hard disk drives.

16) Language pack
Basically DVR has multiple language set, furthermore you can choose the language set if you want.

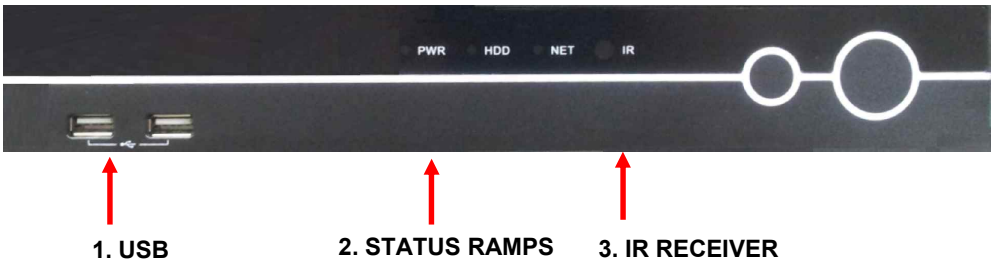
17) Spot monitoring
Spot out can be enable to monitor sequentially in other place.

18) Text inserter(POS Interface)
You can operate with the POS and ATM.

1-4. Name of Each Part

[Front Panel]

<960H series>



1. USB ports : These USB ports are for mouse and USB devices. You should connect correctly the USB devices and mouse as picture directed.

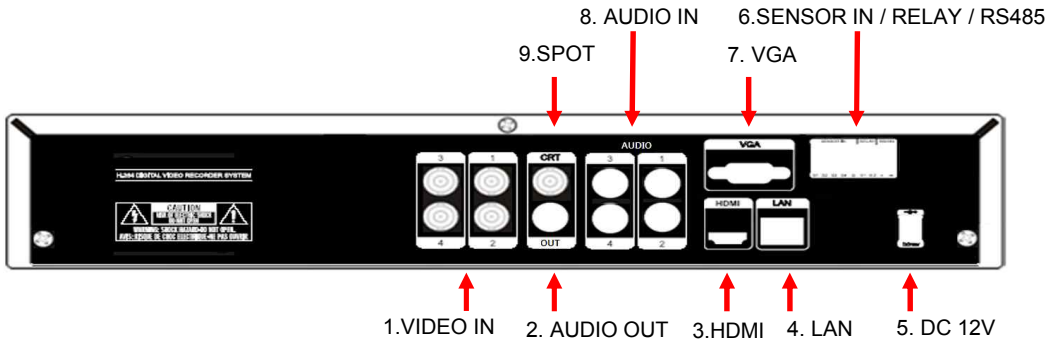
2. Status lamps

POWER : Blue color back light. Power indicator.
RECORD : Red. Indicate the recording.
NETWORK : Green. Lit on connecting the network

3. IR RECEIVER : It is for remote controller.

[Rear Panel]

<4 CH>



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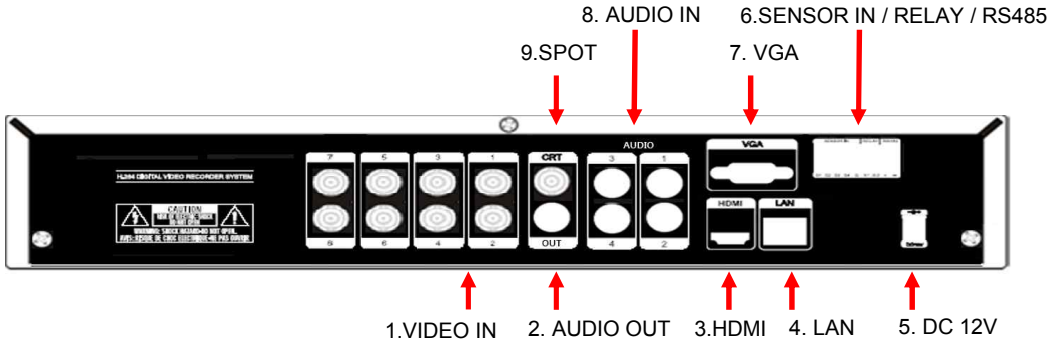
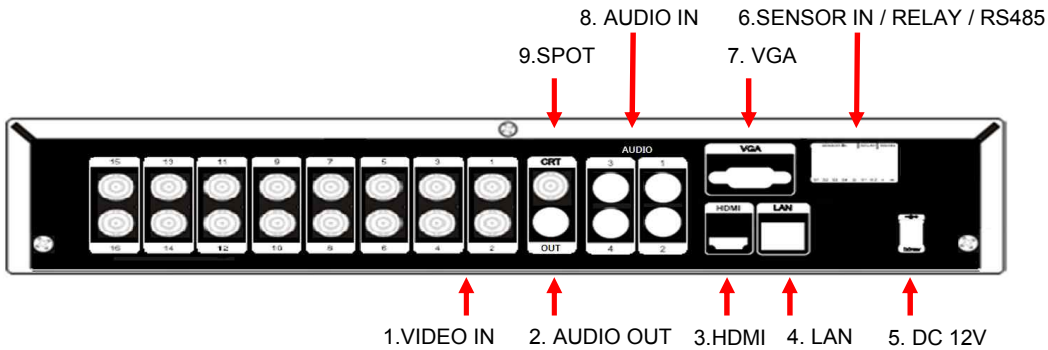


<16 CH>



1. **VIDEO IN** : This receives images from cameras and sends them to monitors.
2. **AUDIO OUT** : RCA audio out terminal.
3. **HDMI** : Real HD(1920X1080) output for high resolution monitor
4. **LAN** : This is the Gigabit Ethernet LAN cable connection terminal.
5. **DC 12V** : DC12V 4.16A or up
6. **SENSOR IN** : This terminals can be connected to external sensors.
   RELAY : This terminal blocks connect external electric devices to the product (Warning Lamp and others).
   RS485 : For control the pan and tile cameras. Make sure that the polarity.
7. **VGA** : video output for VGA display
8. **AUDIO IN** : RCA audio in terminals. You can record 4 channels at the same time.
9. **SPOT** : For spot CRT monitor, composite signal comes out.

❖ *For more details, refer to [CH 2. Installation Method and Cautions].*

CH2. Installation Method and Cautions

2-1. Cautions

WARNING

Risk of electric shock.
Do not open the cover of the product.
Servicing of this product by unauthorized personnel is prohibited and will result in a void of warranty.

In order to ensure the most stable conditions for power, the use of a UPS (Uninterrupted Power Supply) is recommended.

- Avoid installing the product where there are direct rays or it is hot by locating near from heat generator. (May cause fire)

- Do not put vase, flowerpot, cup, cosmetics, drug, and anything the contain water on product. (May cause fire or electric shock, and it may injure people by falling)

- Do not insert or drop any metal object (coin, hair pin) or flammable object (match, paper) into air hole. (May cause fire or electric shock)

- Do not put any heavy object on it. (May injure people by being fell or destroyed.)

- Put power plug surely not to be moved. (If not, this may cause fire.)

- Unplug power plug and antenna when there are thunders and lightening. (May cause fire.)

- For cleaning the product, wipe surface with dry towel. Using chemical agent or cleaner may change the color and unpeel paint. Do not put several plugs at same time. (May cause electric shock.) If there is smoke or strange smell, stop operation. In this case, turn the power off and unplug it, and then contact our service center. (If you keep using it, this may cause fire or electric shock.)

- Do not unplug by pulling cord. (If cord is damaged, it may cause fire or electric shock.)

- Do not plug or unplug with wet hands. (May cause electric shock.)

- Keep the power cord untwisted. (May cause fire or electric shock.)

- Use proper adapter. (Using too much electric power may cause fire or electric shock.)

- Do not install it at where exposed to rain and wind and water drop. (May cause fire, electric shock and transformation.)

- Keep away from fire. (May cause fire.)

-Do not disassemble or remodel on your own. (May cause malfunction or electric shock.)

- Do not put next to flammable materials like flammable spray. (May cause fire.)

- Do not install it at a place with too much dirt. (May cause fire.)

- Do not install it on unstable places like shaking table and inclined place or shaking place. (May injure users by falling down or being upside down.)

- Do not put an heavy object on power cord or avoid it from being pressed by the device. (May cause fire or electric shock.)

- In case of using extension cord, do not use several devices at same time. (May cause fire with abnormal heating of extension.)

- When there are dirt on power plug pin or power outlet, clean it nicely. (May cause fire.)

-Do not damage on power cord or plug, and bend or twist or pull too much, and put it between other objects or heat. If power outlet insertion part is not tight, do not use it. (May cause fire or electric shock.)

-Do not drop or give a shock to the product. (May injure people or cause malfunction.)

- Do not touch power adaptor or signal controller. (May cause electric shock.)

- Do not put any object too close to block cooling fan. (May cause fire.)

- In case of exchanging batteries with improper type, there might be danger of explosion.

- For used batteries, throw away separately from other garbage.

- When you take out batteries, avoid children from eating them by mistake. Keep them away from children. (If a child ate them, contact a doctor right away.)

Note :
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

This device complies with the part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operations.

FCC Warning :
This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

CE Warning : This is a Class A product. In a domestic environment this may cause radio interference in which case the user may be required to take adequate measures.

This product has obtained EMI registration.

2-2 Product Installation

This product may be composed of camera and monitor in default, and additionally the sensor, microphone, speaker and PC for network can be connected if necessary.

2-2-1. Power Connection

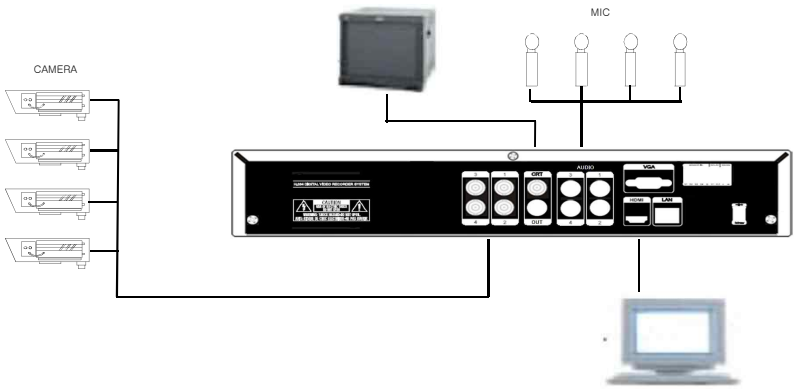
1) Connect adapter cable to power connection terminal at rear side.
2) Input AC power to the adapter. (free voltage from 100V to 240V, 50/60Hz)

※ You must operate it at the rated voltage instructed on the user's manual. In case power higher than the rated voltage is supplied, it may cause damages on product.

2-2-2. Connecting External Device

※ Connect it when power of the product is off.
※ Read through user's manual for the device you are connecting carefully.

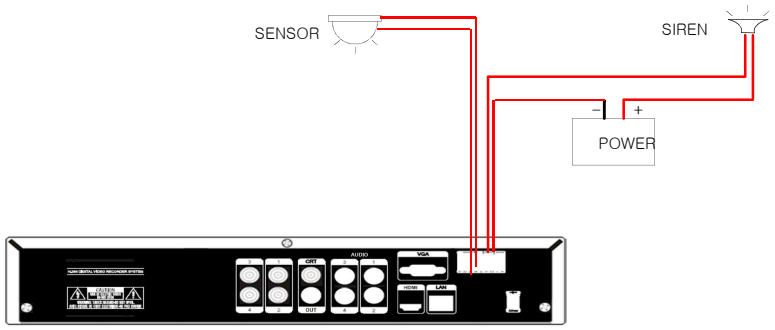
1) How to Connect External Video/Audio Device



Connect cameras to VIDEO IN by channels.
Connect microphone (AMP) to AUDIO IN by channels.
Connect VIDEO OUT to VIDEO IN of monitor.
Connect HD output to HD Monitor.
Connect AUDIO OUT to AUDIO IN of monitor (or speaker).
Connect Spot output to Composite Monitor.

2) How to connect external sensor

Sensor terminal is composed of 1 input channel and 1 output channel. Sensor out terminal is relay output with 1A, 24V or 0.5A,125V.



Sensor In : Connect the sensors. The sensor are composed of both signal and ground terminals, with a voltage difference of 5V. In the case that the sensor used for input is of the N/O (Normal Open) type, when the voltage difference between the signal and ground falls to 0V (short), the DVR can use this as a trigger to start alarm/sensor based recording.

Sensor Out : Connecting external electrical devices

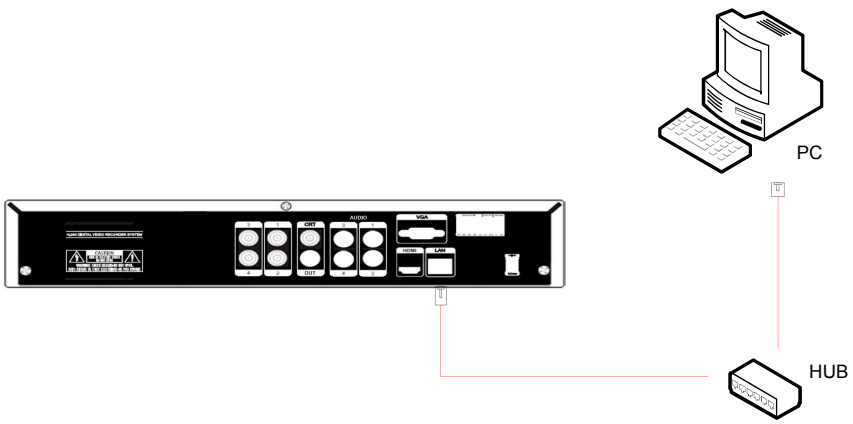
The relay output terminal does not provide power, and functions only on an ON/OFF basis via a relay. Normally, the signal and ground should be on an OPEN basis, and the DVR will complete the relay connection.

3) Connecting with PC using LAN cable

If you want to connect DVR to PC directly, use LAN cable, and if you want to use HUB, connect cable via hub.

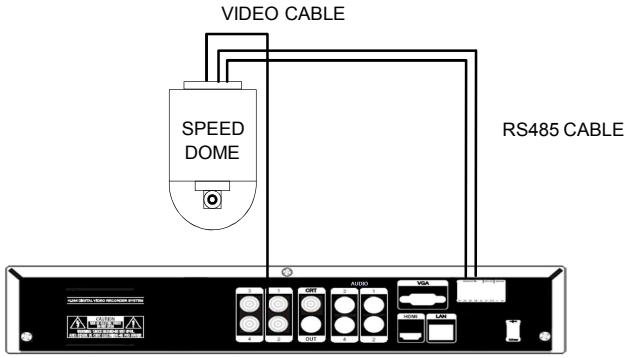
*Hub : This is a device connecting one office to devices located near with using cable when you organize LAN

*Cable : This is standard UTP cable used for communication among devices through Hub and others when you organize LAN



4) Connection Using PTZ camera

In case of using pan and tilt cameras, connect PAN/TILT DRIVE to product as shown at following figure.



5) Installing Hard disk drive

In case of installing the hard disk drive, open the upper case and install the hard disk drive on the hard bracket. Remember that the main power should be off to install the hard disk drive. If you have any trouble, please contact the technical support.

CH3. How to Use

3-1. General Usage Information

This DVR can be operated with a mouse or remote controller under the four main modes listed below:

Live Mode – This is the "main or default" mode. From this mode you can view in real time all currently operating cameras, information regarding camera status, and have access to Pan/Tilt camera controls. In addition, system status information will be shown during live mode, and other modes can be entered from Live mode.

Setup Mode – The user will be able to customize settings for Live viewing, Recording, Backup, and Camera related devices under the Setup Mode.

Search Mode – In Search Mode, the user will be able to review all recorded footage in the case that an event must be reviewed using a calendar or event based search.

Backup Mode – In Backup Mode, the user will be able to archive the desired data to the preferred supported media of their choice (ex. External CD&DVD RW, USB Backup, Remote Client Software, etc.)

Password Protection – The DVR system will utilize a user ID and password system to prevent unauthorized usage of this product. Control of the system will only be possible after entering a proper ID and password as illustrated below. (Factory Default settings are blank for these fields).

IDs and passwords should be managed by a system administrator, as different users may be given different levels of access to the DVR.

3-2. LIVE Mode

In this section you will know how to split the video mode into 1, 4, 6, 8, 9, 12, 16, as well as auto sequencing, PTZ Control, Mouse control, Setup configurations, Backup.

3-2-1. LIVE Mode Control

1) Live View Status

You may use the Live Menu Bar located at the bottom for quick shortcuts and view status of certain items.

	Recording indicator
	Event recording indicator
	Motion detection indicator
	Sensor activation indicator
	POS indicator

2) Live Menu Bar

You may use the Live Menu Bar located at the bottom for quick shortcuts and view status of certain items.

	Date
	Time
	Screen Split mode change
	Sequence activation
	Hard drive usage
	Lock/ Unlock indicator
	Scheduler activation indicator
	Network connection indicator
	Audio out channel indicator
	Audio Mute indicator

3) Live Popup Menu

By Right-Clicking anywhere on Live Screen, you may view the Live Popup Menu. By using the Live Popup Menu, you can quickly jump to the necessary configuration and settings.

3-2-2. LIVE Mode Feature

1) Setup : refer to 3-4

2) Split
Change video split mode for Live View.

3) Audio Out
You can choose the audio out from this menu.

4) Instant Replay
This is very convenient function to catch the abrupt accident. During live viewing, you can go directly to the playback screen.

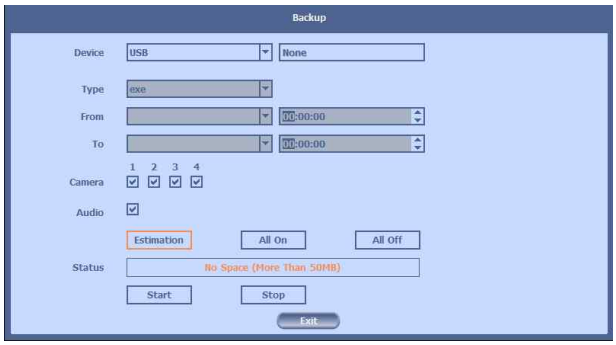
If you choose the 'Instant Replay' , the DVR goes to the 'PLAY' with the present time screen. And you can use the functions related playback.

5) Search : refer to 3-3

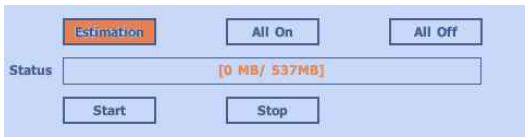
6) Backup

There are two ways to enter the backup. The first one is that right click on the live screen, and the second one is that enter directly from 'Search' upon playback. If you choose the 'backup' from the live menu, below backup screen appears.

• You can set the backup device, time and channel from the backup screen.



• After that, if you push the 'Estimation' button, it will show the estimated backup file size.



• Then click the 'Start' button.

WARNING

Do NOT remove the backup device till end sign. The device and system may be damaged.

7) Snapshot

You can save the live snapshot by this menu. All channel will be saved individually to the USB memory by JPG format . You should put in USB memory before saving.

8) Freeze

You can freeze the current live video channels.

9) PTZ (Pan, Tilt and Zoom)

It is possible to control the pan and tilt camera by itself. Press the 'PTZ' button to enter the PTZ mode. For Menu setting, you can set it by pressing button as displayed at bottom of window.

• You can set the direction of camera by using the arrow buttons.

Preset[Enter]	Preset setup
Zoom -/+	You can zoom out/in with mouse or [1]/[2] buttons on the remote controller.
Focus -/+	You can adjust the focus with mouse or [3]/[4] buttons on the remote controller.
IRIS -/+	You can adjust the iris with mouse or [5]/[6] buttons on the remote controller.

❖ *For more details, refer to [CH 2-2. Connection Using PTZ camera] and [CH 3-4-3. Device]*

- **Preset[SEL]** : You can enter the preset number using the keypad appearing the preset button or 'Enter' button on the remote controller.

Run[SEL]	Move to preset number
Set[Play]	Set a position and name of a preset number
Clear[Stop/Backup]	Clear a preset set
Exit	Exit preset mode

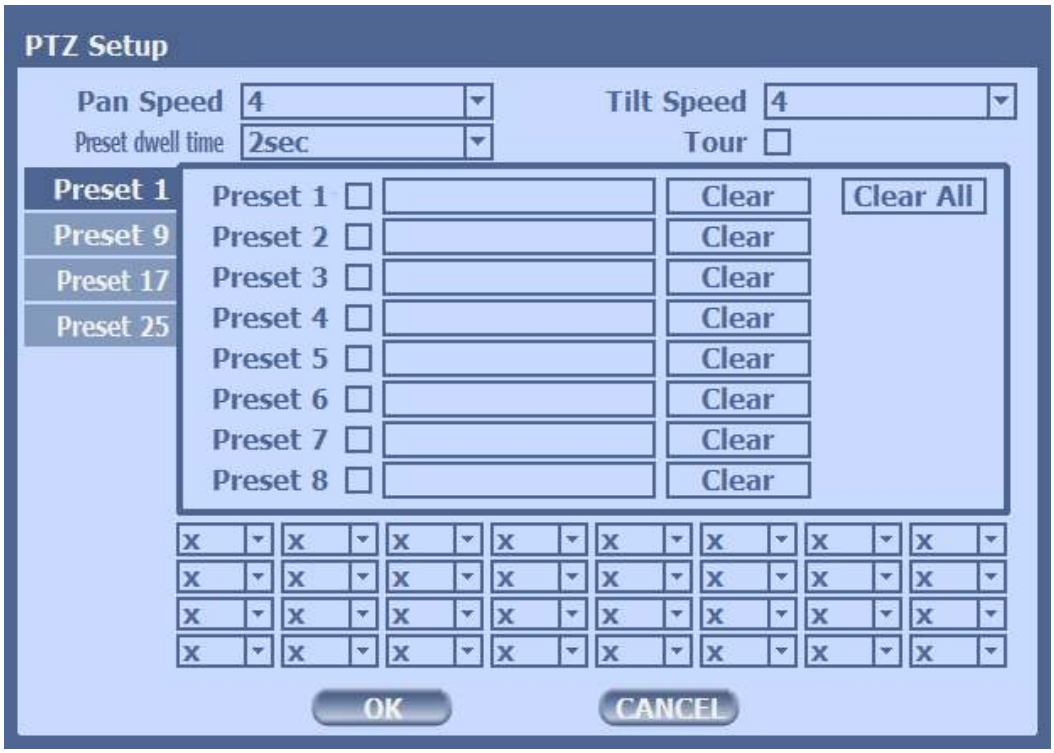
❖ How to use Preset

1. Make sure that PTZ camera is connected to DVR.
2. Click the right mouse button and choose PTZ from a live pop-up menu.
3. After you move the screen, click the set button and set the position and name.

※ If you choose not a specified preset, UNDEFINED is displayed on the screen.
※ You can set up to 32. If you choose out of valid range, there is no action.

- **Camera[0]** : You can choose the PTZ camera with mouse or [0] buttons on the remote controller

- **Setup[9]** : If you press Setup using mouse (or [9] button on the remote controller) in PTZ Menu, PTZ setup window will appear. You can set the pan and tilt speed, 32 preset name and tour sequence as well as dwelling time.



Pan Speed	Set pan speed 1~7
Tilt Speed	Set tilt speed 1~7
Preset dwell time	Set preset dwell time 2~6 sec
Tour	When you check the tour box, the preset tour starts in the order specified by the user.

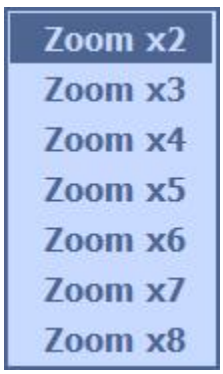
❖ How to use Tour
Choose a preset from upper left to right.

※ If you use not specified presets, it automatically skip the tour.

10) Zoom

Digital zoom of live screen for selected channel. It can be 8x zoom and also control the position by mouse dragging.

- Camera[0] : You can choose the camera for zoom with mouse or [0] buttons on the remote controller.
- Zoom[9] : You can zoom with mouse or [9] buttons on the remote controller.

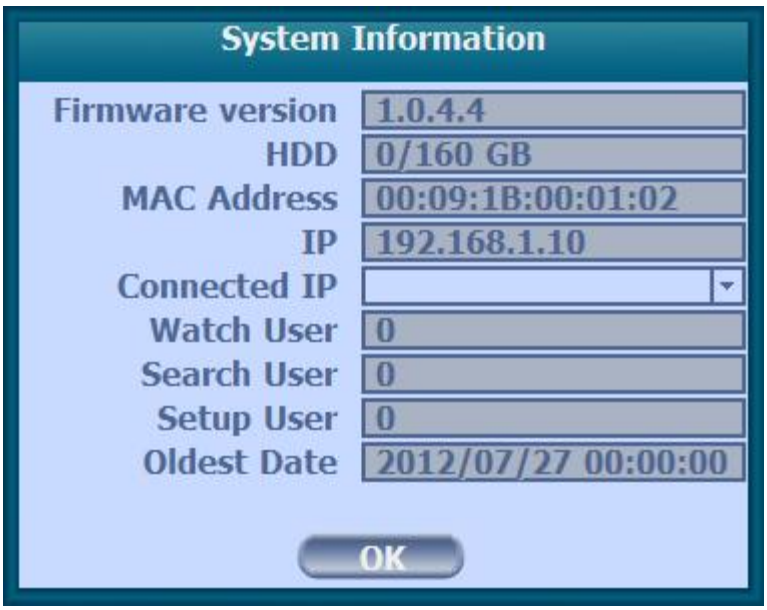


11) Sequence
Sequence Mode On /Off: Switches screens as set on Dwell time under Screen Setup

12) OSD
This feature shows current settings of product through GUI (Graphic User Interface) and INFO button at front side is used for this feature. When you turn on power, this will show current date and time, System Lock Setting, HDD usage, Video Loss Check, Sensor ON/OFF, Motion Detection Check, Recording Status and Schedule Feature Usage. As you press INFO button once more, GUI disappear->OSD disappear->GUI appear->OSD appear will happen sequentially.

- ❖ GUI (Graphic User Interface): displaying current status on monitor as images
- ❖ OSD (On Screen Display): displaying current status on monitor as character

13) System Information
It shows the system information.



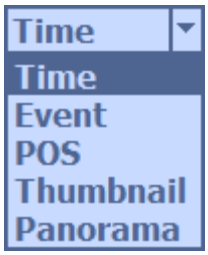
14) Lock/Log In
Logs off current user and locks DVR from any further configuration and screen setup until next Administrator logs in.

15) Alarm Control

You can control all alarms connected and the DVR system buzzer.

3-3. Search Mode

Search mode consists of two different modes of searching. The video data can be selected by 5 modes.



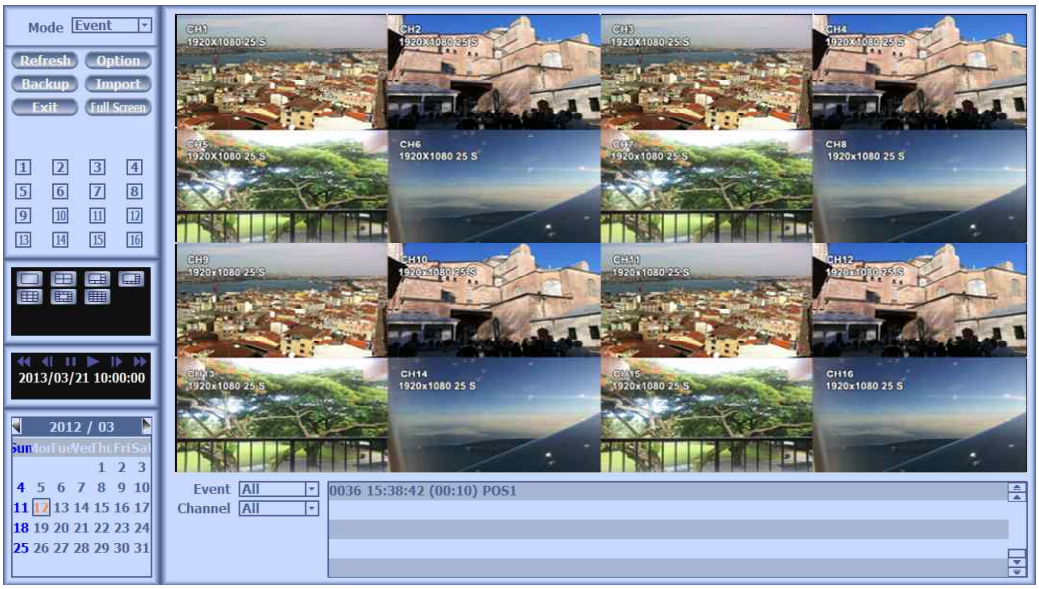
Time	Search by Month / Day / Time selection.
Event	Select from Event Log.
POS	Search by POS transaction data.
Thumbnail	Play the specific channel by user defined interval.
Panorama	Play the specific channel continuously.

3-3-1. Search Selection Type

1) Time Based search selection

- Select the Date you wish to view by selecting a Date from Calendar.
- Select time you wish to view by selecting a time from Time Line.
- You may click on Refresh, Option, Backup, Import, Exit , Full Screen for additional features and options.

2) Event Based Search Selection

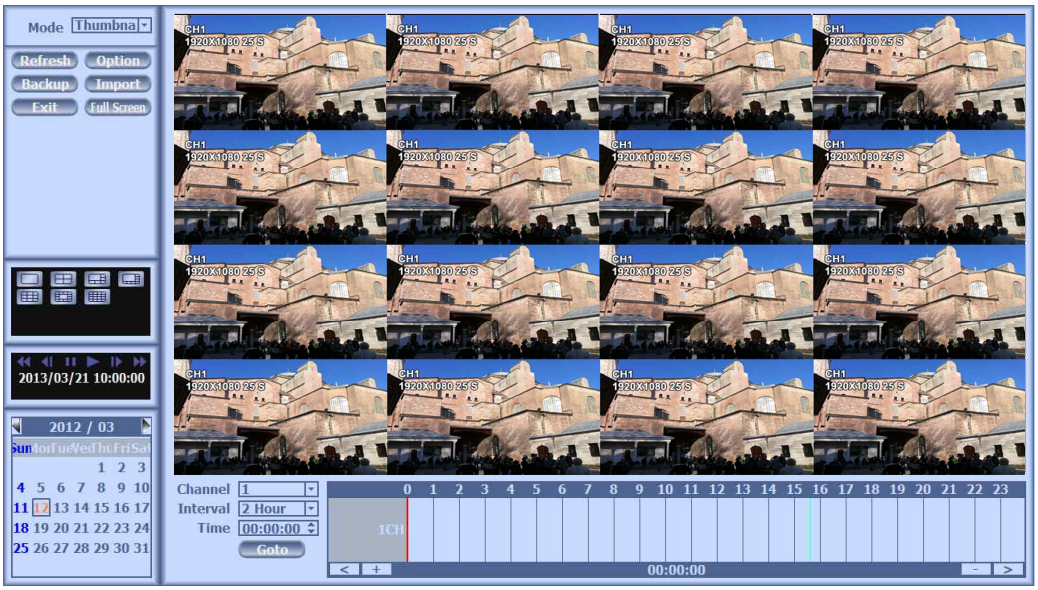


- Select search date from calendar
- Event log will be displayed according to the chosen date
- Preview pane above the Event Log will show preview of currently selected video

3) POS Search

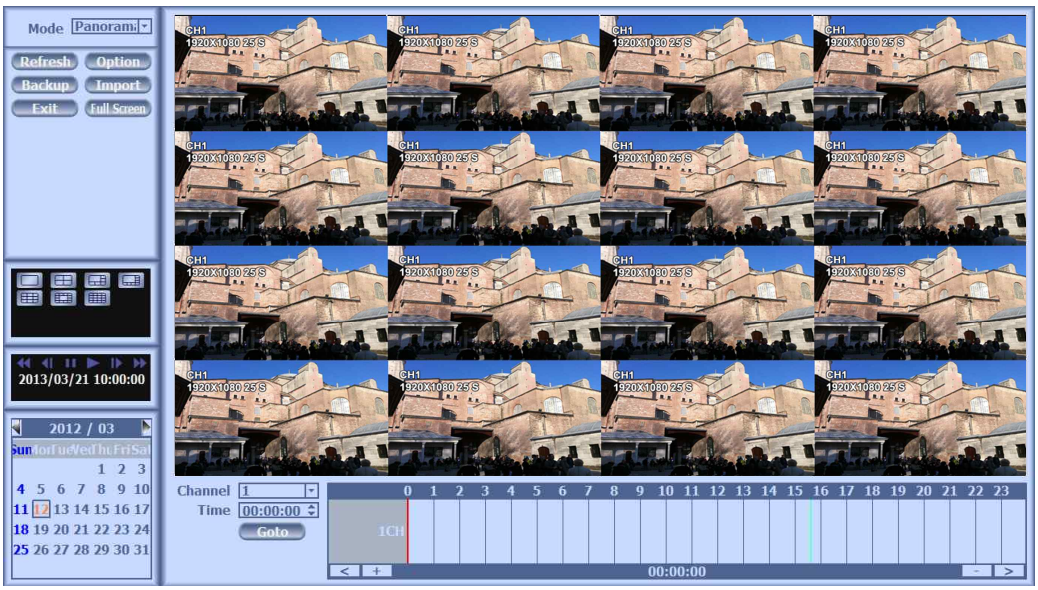
- Select search date from calendar
- POS transaction data will be displayed according to the chosen date
- You can search detail by filter.

4) Thumbnail Search



- Select search date from calendar
- Choose the channel and interval, then select the time from bar or typing
- The selected channel will be played individually by interval time difference

5) Panorama Search



- Select search date from calendar
- Choose the channel and time from bar or typing
- The selected channel will be played continuously. If you want to play faster, use the FF button.

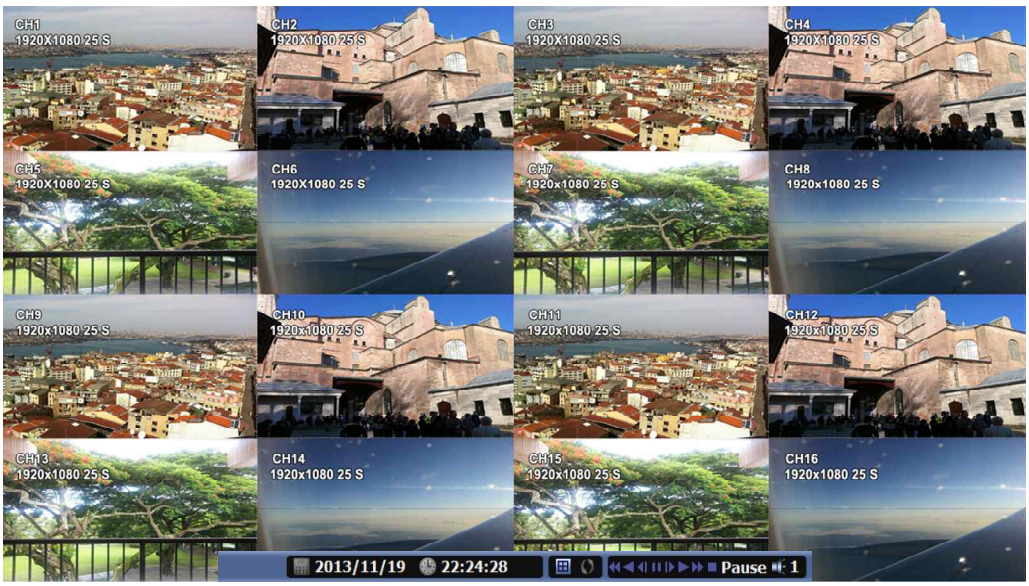
6) Search Related buttons

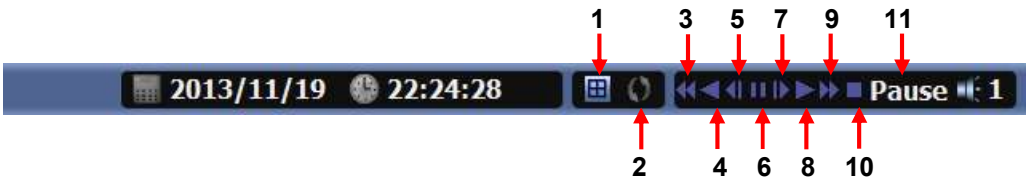
- You may click on Refresh, Option, Backup, Import, Exit , Full Screen for additional features and options

Refresh	Reload all data list.
Option	Search option.
Backup	Backup recorded data to external USB device.
Import	Playback recorded data from external USB device.
Exit	Move to Live video mode.
Full Screen	Load playback data to full screen mode.

3-3-2. Play Mode

If you choose 'Full Screen', the full screen appear. You can control the play speed in here.





▶ Play Screen GUI

1. Split Screen
2. Sequence
3. FB (Fast Backward): FB×2, 4, 8, 16, 32, 64 times faster
4. Playback : Backward normal speed
5. SB (Slow Backward):SBx1/2, SBx1/4
6. STILL (Pause) / Frame advance
7. SF (Slow Forward):SFx1/2, SFx1/4
8. Play : Forward normal speed
9. FF (Fast Forward): FF×2, 4, 8, 16, 32, 64 times faster
10. STOP : Stops playing and returns to LIVE Screen.
11. Status information

3-4. SETUP Mode

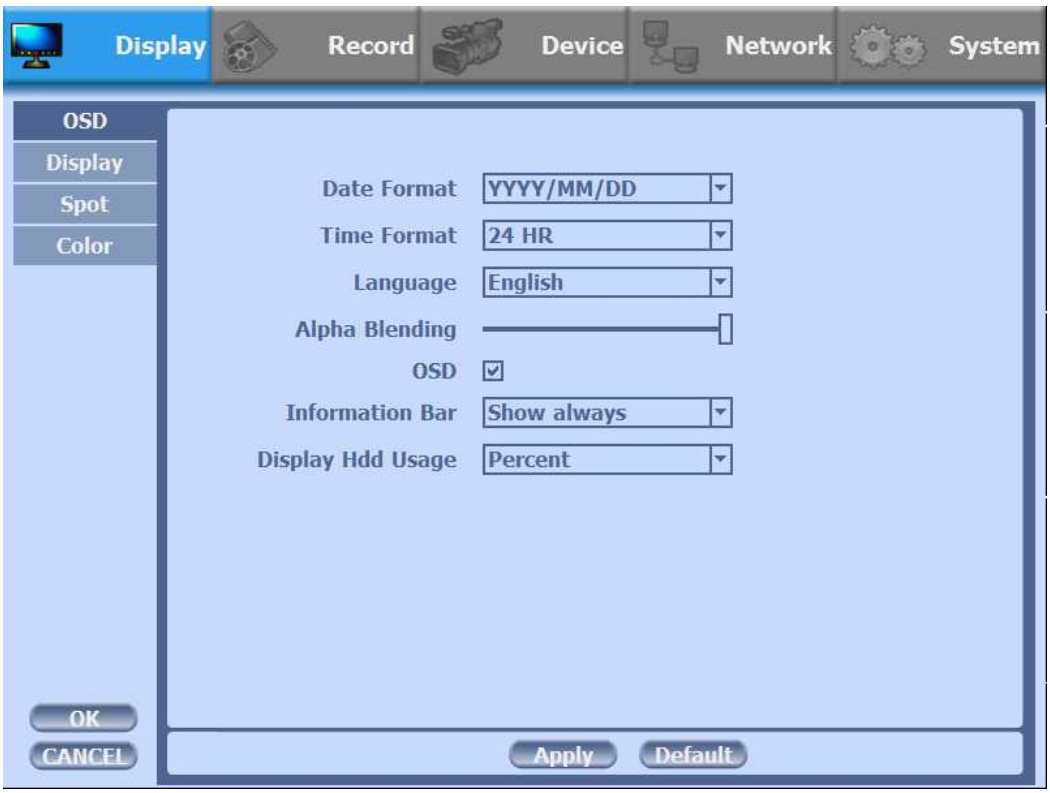
Access Setup menu from Right Clicking mouse button to Popup Menu.
Configure Display, Record, Device, Network, System which is navigated by clicking on corresponding tab menu at the top of the screen.

Apply	Apply changes
Default	Return to factory default settings.

3-4-1. Display

Configure OSD, Main Display, Spot, Color Control setting.

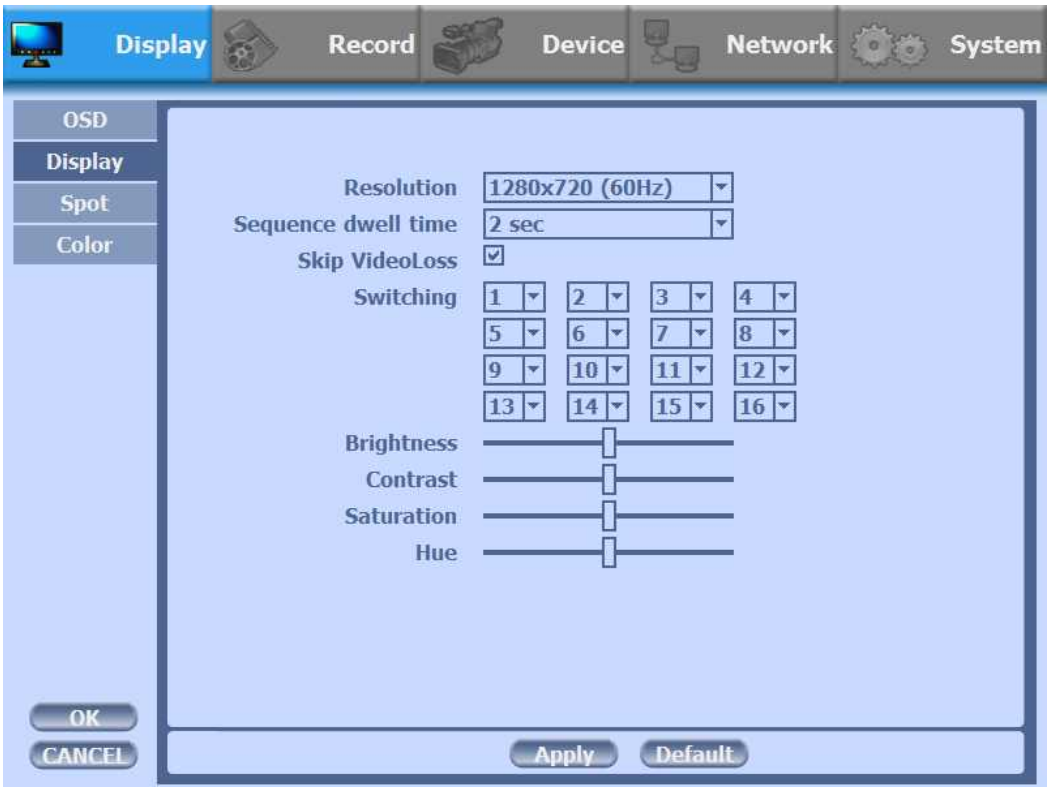
1) OSD



Date Format	YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY
Time Format	24HR, 12H(AM/PM)
Language	Select system language.
Alpha Blending	Adjust transparency of System Menus.
OSD	OSD On/Off
Information Bar	Information Menu Bar Hide always/Auto hide/ Show always
Display HDD Usage	Percent/Oldest Date

2) Display

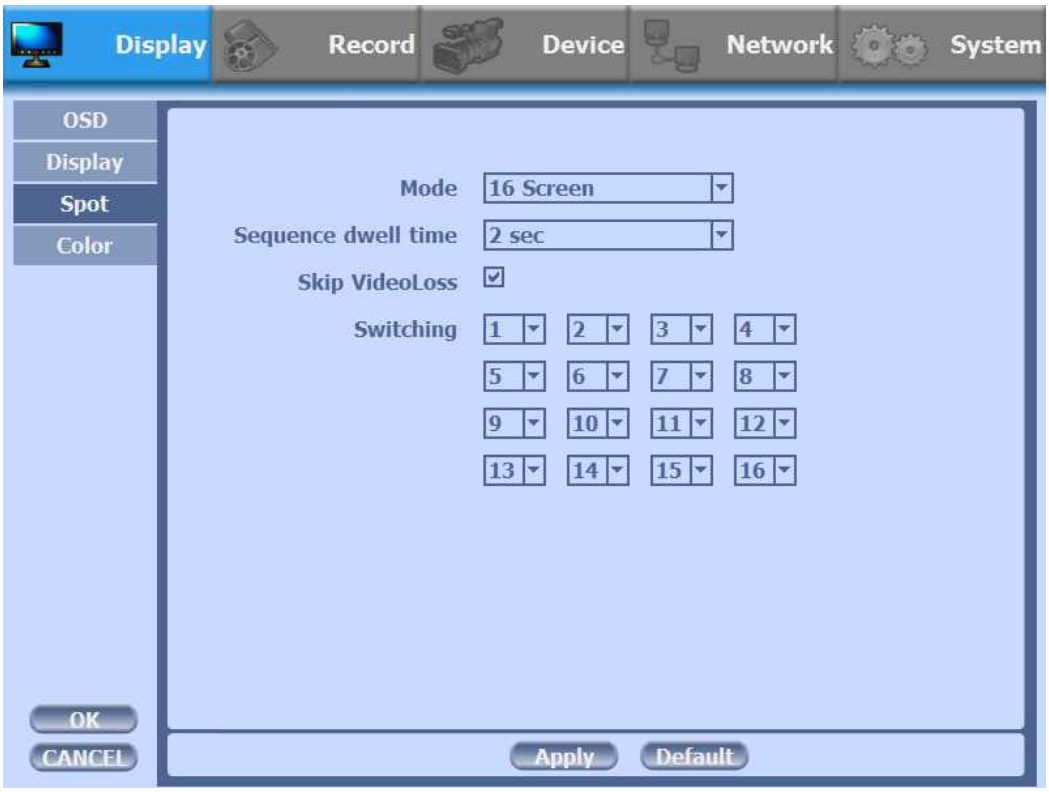
- You can use dual monitors that VGA and HDMI show same images.
- Configure and view Resolution, Sequence Dwell Time settings.



Resolution	1280x720(60Hz), 1280x720(50Hz), 1280x1024(60Hz),1920x1080(60Hz), 1920x1080(50Hz)
Sequence dwell time	1 sec ~ 60 sec
Skip Video Loss	Skip a video loss channel when you set the sequence of the live screen.
Switching	Set a display for the live screen.
Brightness	Adjust brightness.
Contrast	Adjust contrast.
Saturation	Adjust saturation.
Hue	Adjust hue.

4) SPOT Control

- Set the SPOT output .



Mode	1, 4, 9, 16 Screen
Sequence dwell time	1 ~ 60 sec
Skip Video Loss	Skip a video loss channel for the sequence of the Spot.
Switching	You can program the sequence time. If you want to just see ch1, you set all box to '1'. You can make any useful sequence by this map.

5) Color

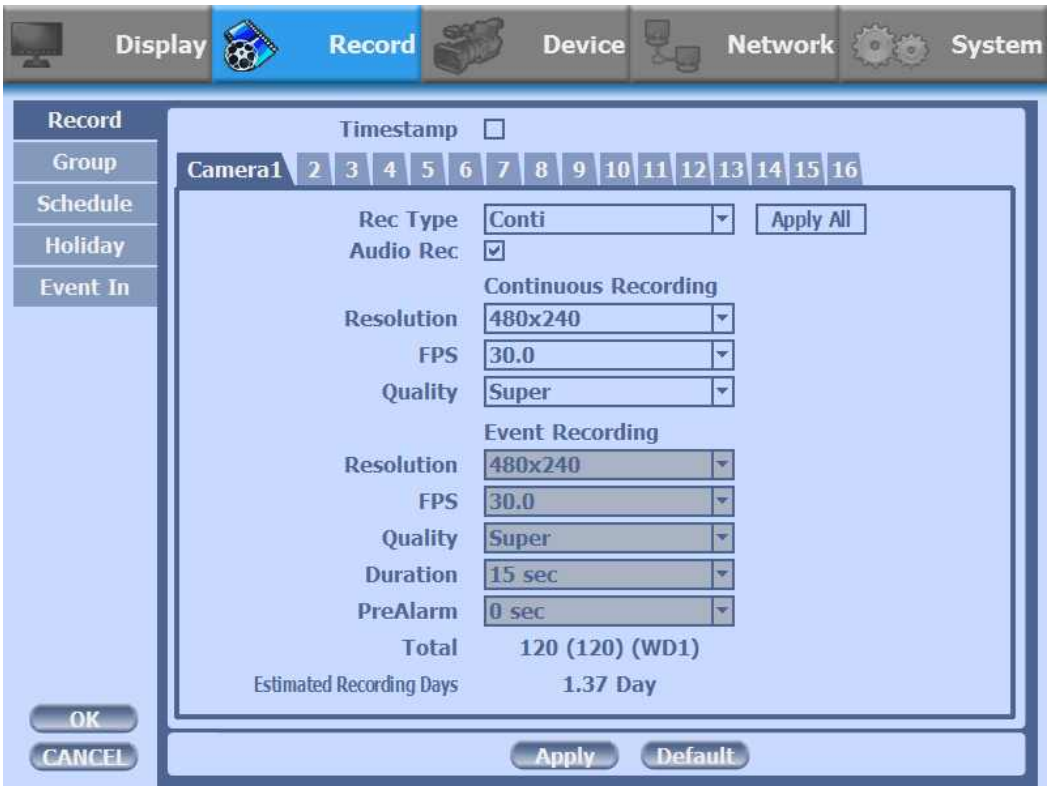
- Adjust color of analog cameras.

Brightness	Adjust brightness
Contrast	Adjust contrast
Saturation	Adjust saturation
Hue	Adjust hue
Default	Return to factory default settings.
Apply All	Apply changes to all channels.

3-4-2. Record

Configure and view Event In, Record, Group, Holiday settings

1) Record

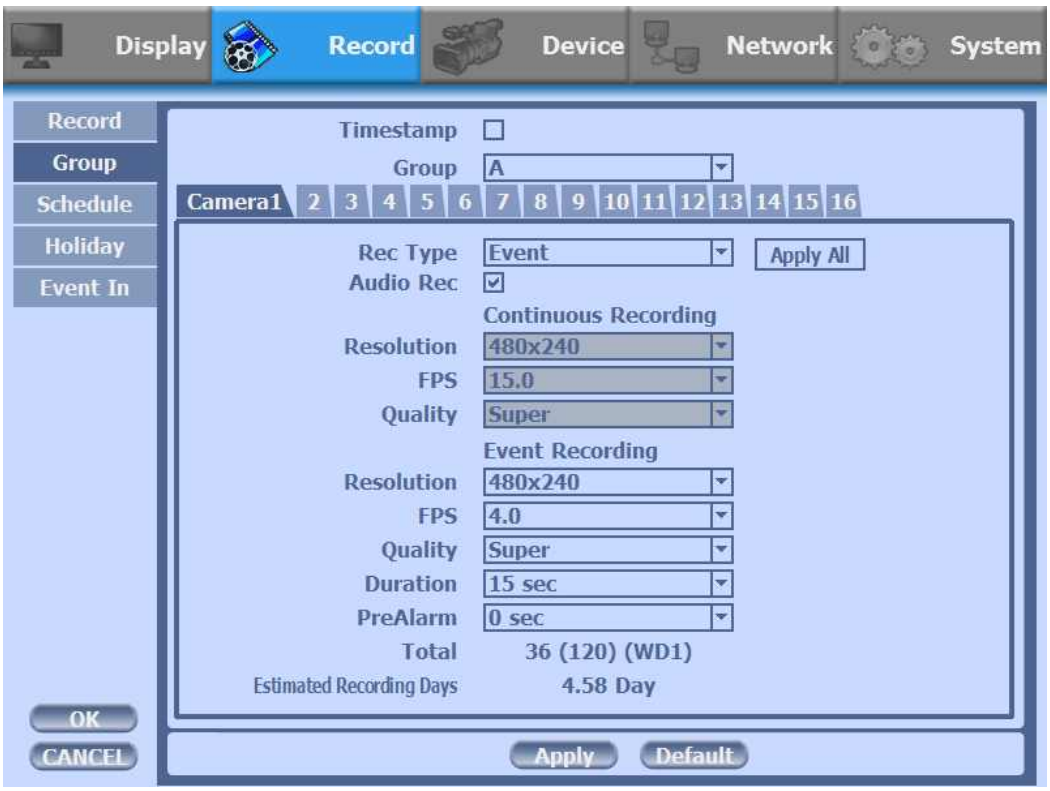


Rec type		None, Conti, Event, C/E
Audio Rec		To select audio recording or not.
❖ ALL Apply		Apply the setting to whole channel.
Continuous	Resolution	960x480, 720x480, 480x240, 352x240
	FPS	30, 15, 10, 7, 6, 5, 4, 3, 2, 1 fps
	Quality	Super, High, Med, Low
❖ Event	Resolution	960x480, 720x480, 480x240, 352x240
	FPS	30, 15, 10, 7, 6, 5, 4, 3, 2, 1 fps
	Quality	Super, High, Med, Low
	❖ Duration	5 ~ 60 sec
	❖ PreAlarm	0 ~ 4 sec
❖ Total		It shows the total fps.
❖ Estimated Recording Days		This is an automatic calculator of the recoding days.

- ❖ Event recording has priority in recording. In C/E recording, the recording will follow conti recording setup in normal condition while it would follow event recording setup in event generation.
- ❖ For convenience, you can use the 'Apply All' menu to change with the same preference. You don't have to setup each channel if you using the 'Apply All' function.
- ❖ Duration is to set post event recording time.
- ❖ Pre alarm is to set pre event recording time.
- ❖ Total shows total fps of all channels. If total fps is more than supported, it turns red. If it turns red, you need to set a lower resolution or FPS.
- ❖ Event recording has priority in recording. In C/E recording, the recording will follow conti recording setup in normal condition while it would follow event recording setup in event generation.

2) Group

- With this menu, you can set the group using the scheduler. If you choose 'Group' tab, you can see the similar screen with 'Record'. The setting is similar



*** Timestamp**

With 'Record' and 'Group' menu, you can check the 'Timestamp' to mark the time on your recording files.

3) Schedule

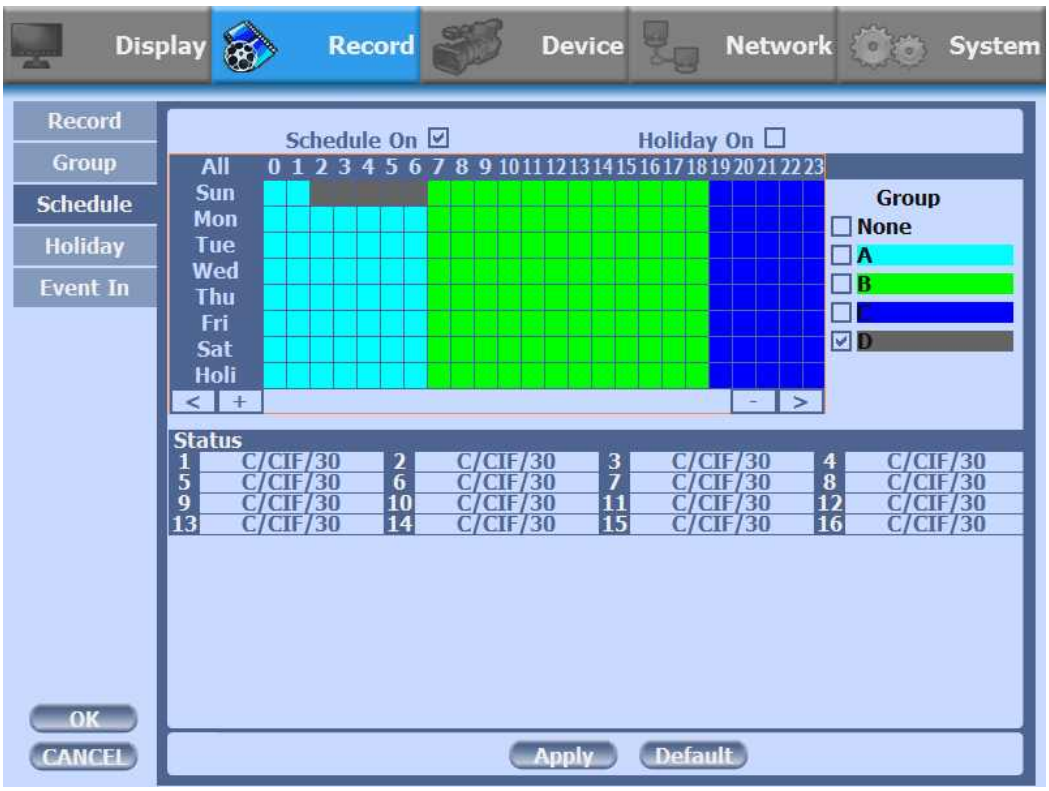
- In recording, Schedule recording setting is most preferred. So if you activate the weekly scheduler, you cannot record manually.

- Schedule On : The weekly scheduler is activated.
- Holiday On : The holiday that set by user is activated.

- Since you can set recording weekly, you can reduce recording of unnecessary time period. In Scheduler window, days and channels are displayed, and recording information for each channel is displayed at bottom of window.

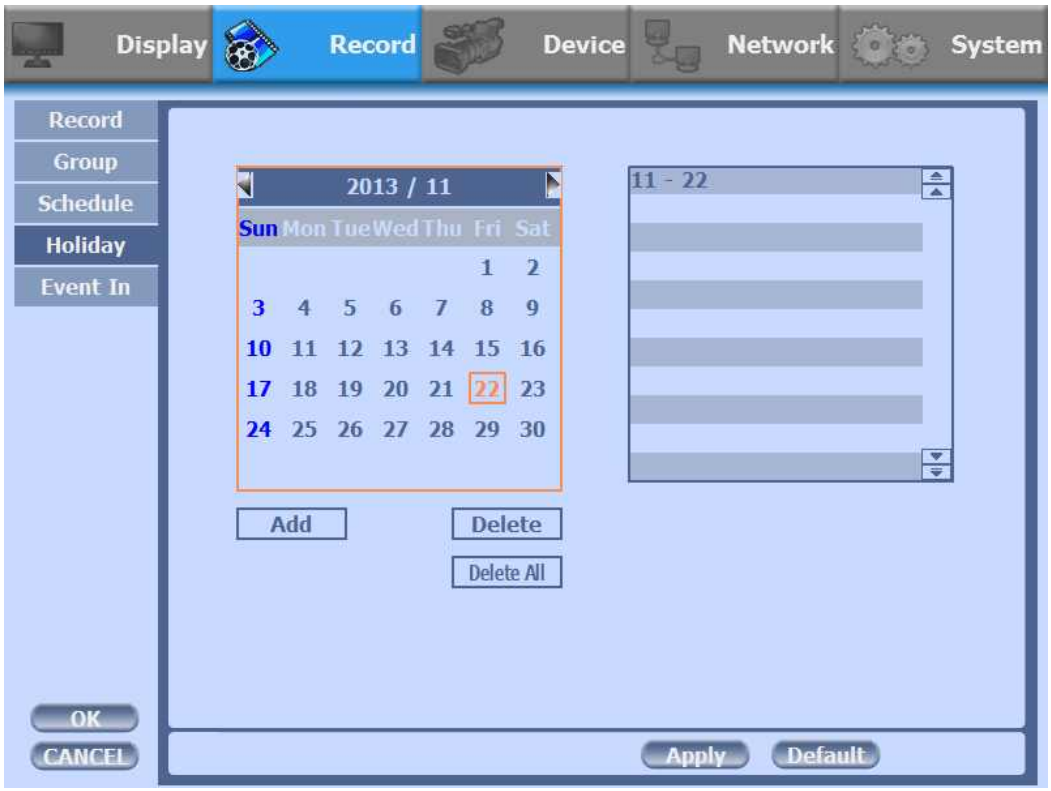
❖ **How to set the weekly scheduler**

1. Choose 'Scheduler' to 'On'.
2. Choose group and drag to wanted time.
3. Press the time bar [+] [-], if you want to set the detailed time.
4. Press ‘Enter' button to change the group of the selected area.
5. If you activate ‘Holiday’ scheduler, choose ‘holiday’.



4) Holiday

With this menu, you can add the holidays. Use the 'Add' button for adding the holiday and use the 'Delete' or 'Delete All' buttons for removing the existing holidays.

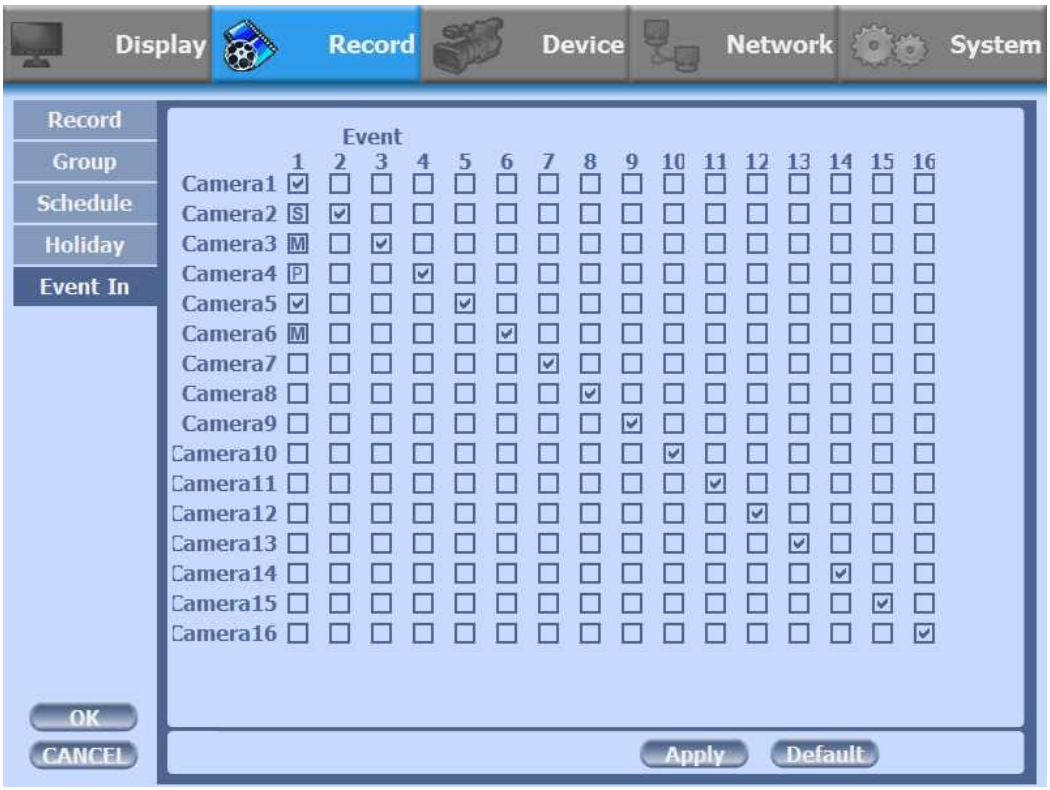


5) Event In

- With this menu, you can set sensor input, motion detection setup. You can also set each channel individually.
- Although you set Motion Detection and Sensor Setting to On in Event menu, if Event Input in Rec Menu is set to None, it only detects and does not record.

❖ Summary regarding as Event Recording

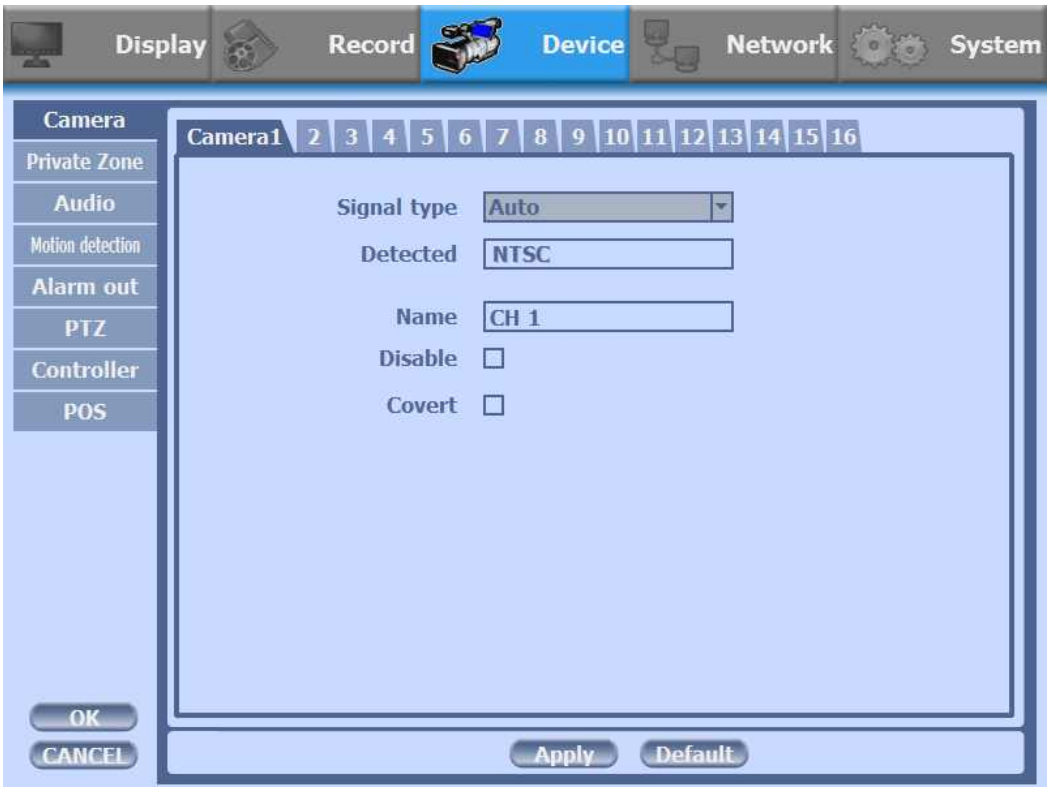
Event In	OSD	Sensor	Motion Detection	POS
Sensor	S	ON	OFF	OFF
Motion Detection	M	OFF	ON	OFF
POS	P	OFF	OFF	ON
All Event	☑	ON	ON	ON
None		OFF	OFF	OFF



3-4-3. Device

- Configure and view Camera, Private Zone, Audio, Motion Detection, Alarm Out, PTZ settings and Controller.

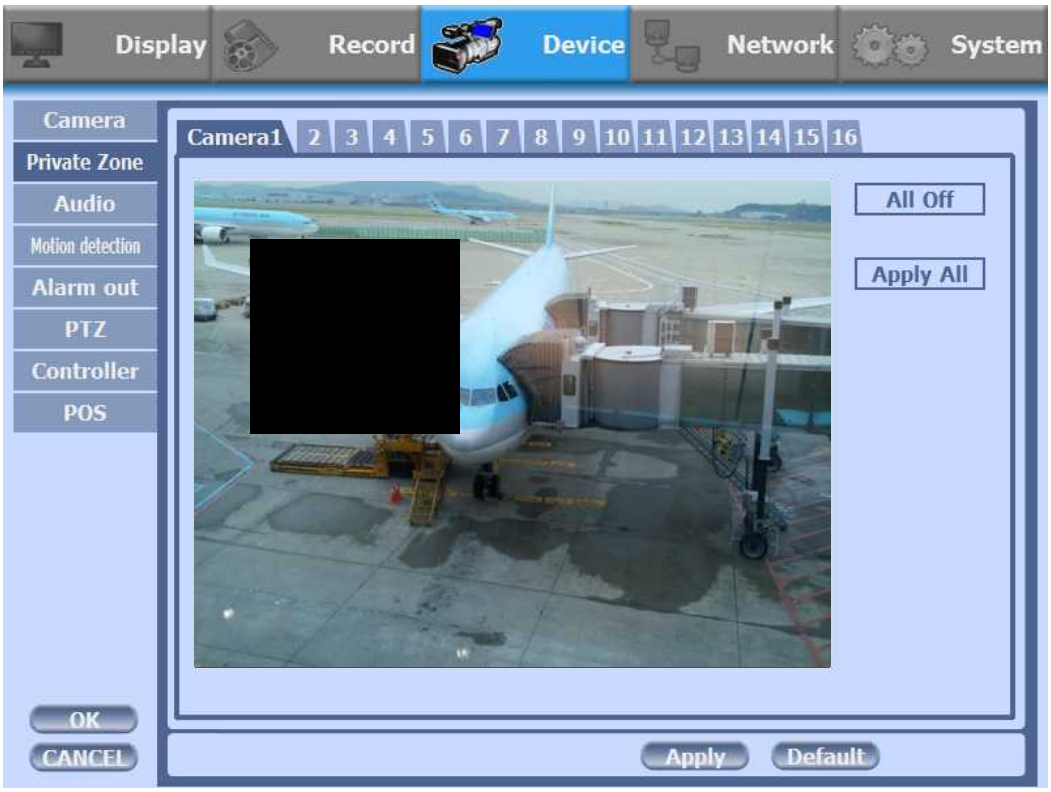
1) Camera



Signal type	All video input is detected automatically/
Detected	Detected camera video type
Name	You can set the camera name.
Disable	Disable current camera. It is useful when the signal is bad.
Convert	Hide current camera from Live view but Record for future searching option.

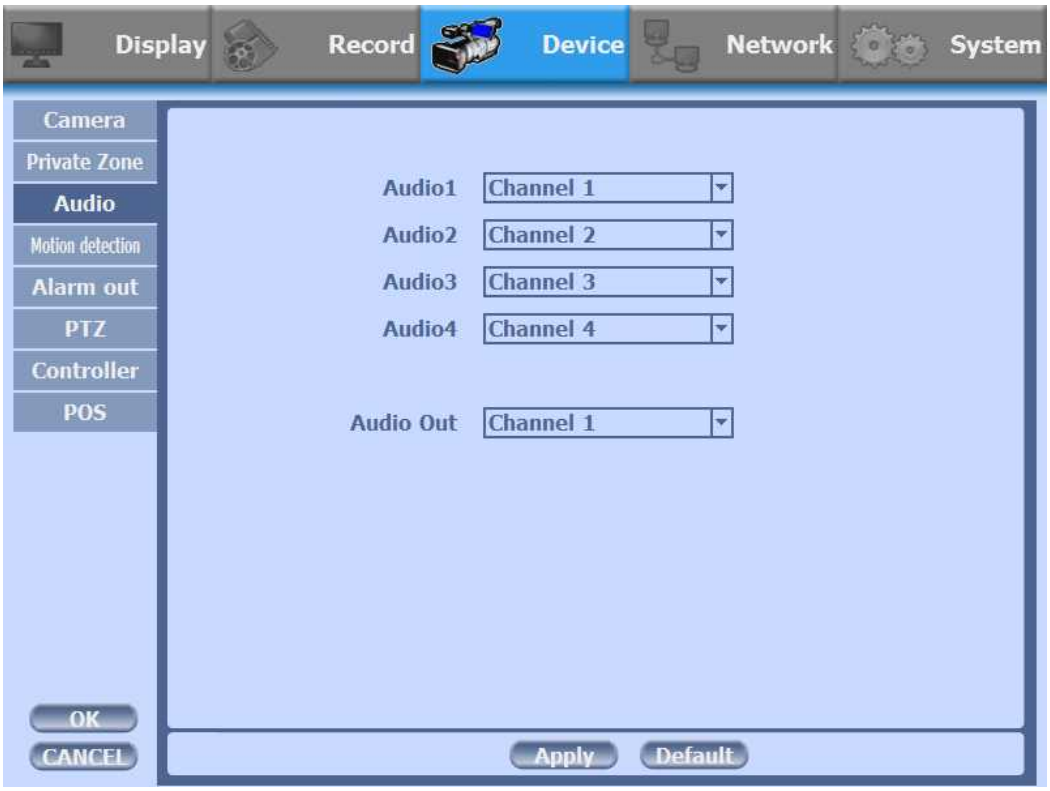
2) Private Zone

If you want to hide some part of the picture for privacy, you can choose the area by dragging the mouse. The selected area will be changed to black screen.



All Off	All off the private zone
Apply All	Apply the setting to whole channel

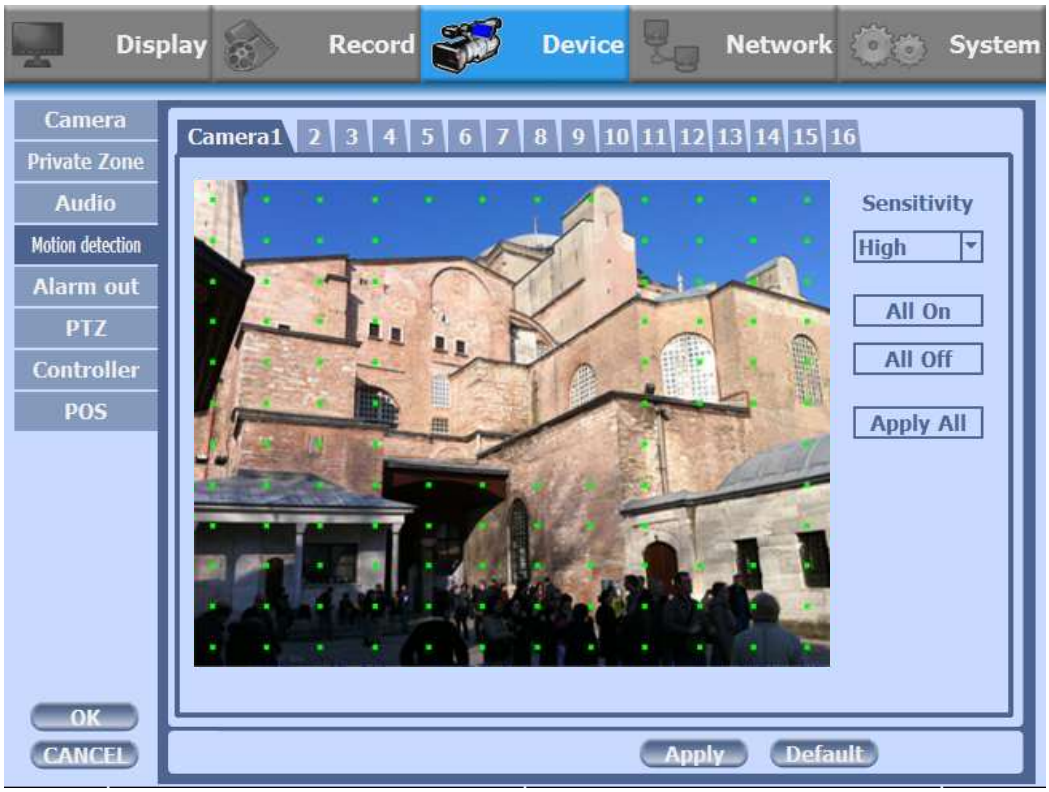
3) Audio



Audio 1~4	Assign audio input to a video channel.
Audio Out	Select which channel will be heard during Live View.

4) Motion Detection

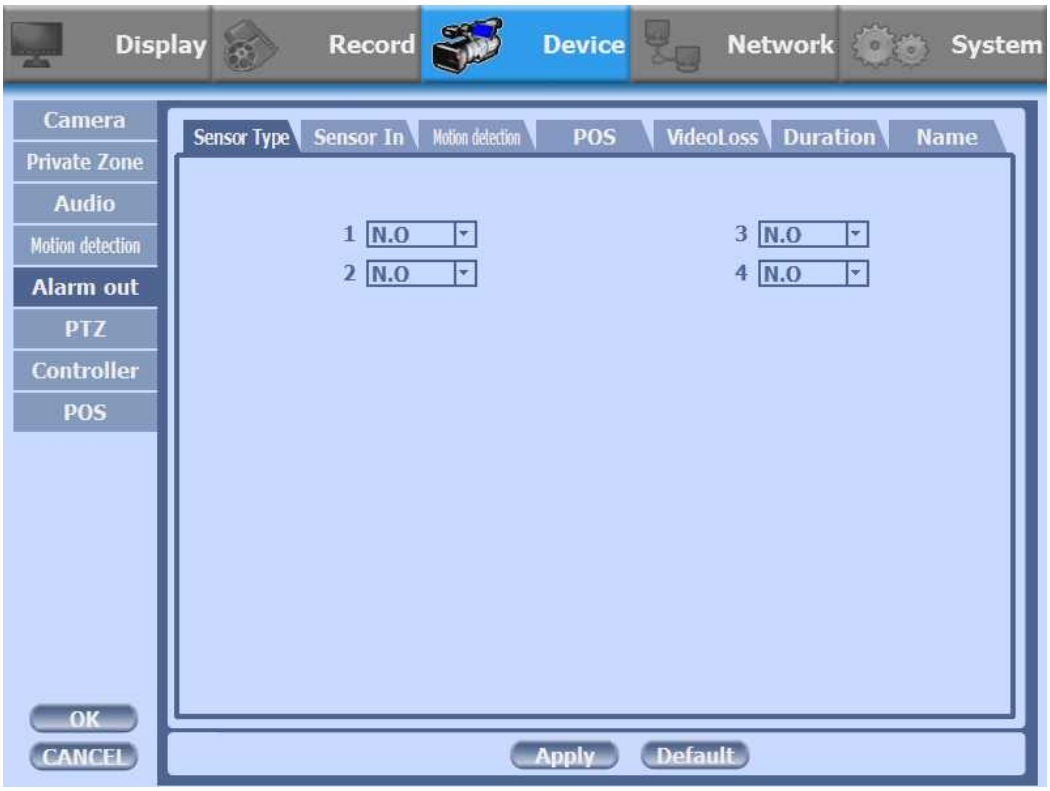
- Change settings for Motion Grid selection and Sensitivity Level. You can set multiple area.



Sensitivity	Low, Mid, High
All On	This will activate the motion detection of the all area.
All Off	This will deactivate the motion detection of the all area.
Apply All	Apply the setting to whole channel

5) Alarm Out

- There are 4 types trigger such as sensor input, motion detection, POS and video loss. This setting is related that which trigger will be activate the action such as Relay, Popup, and Buzzer Alarm Out. Each type can have separate Duration value and also linked to selected camera.



5-1) Sensor Type

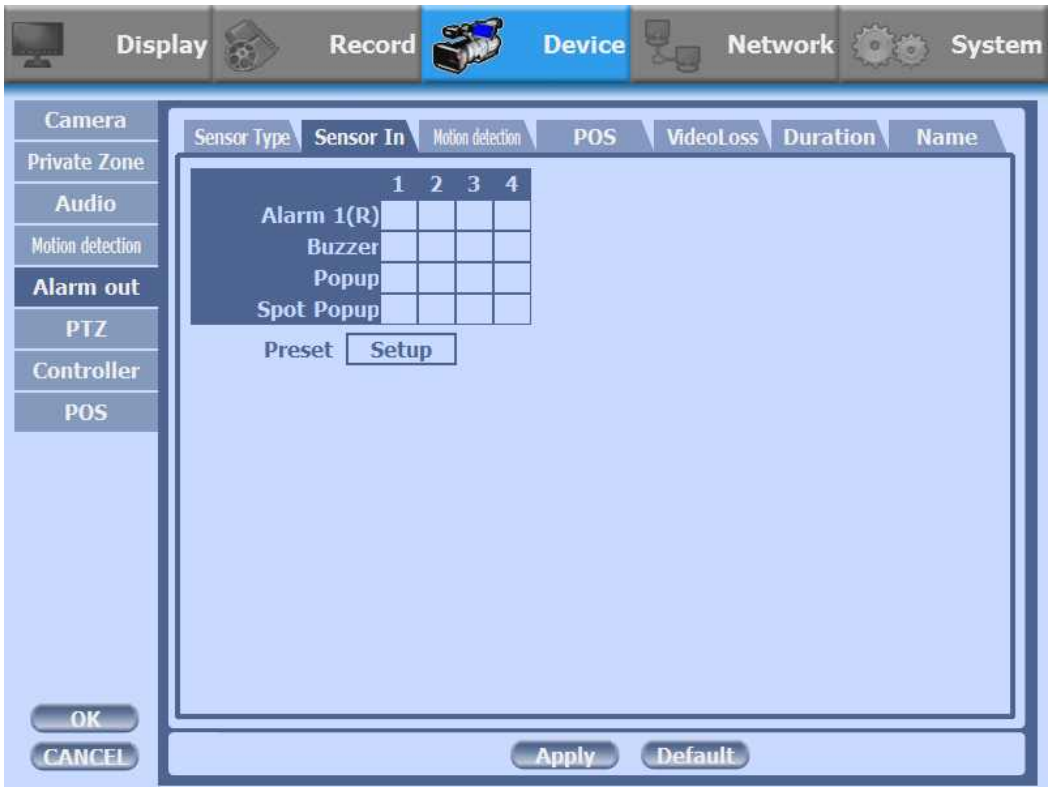
Selectable option is N.O. (Normally Open) / N.C. (Normally Close)

1~4	N.O(Normal Open) / N.C(Normal Close)

❖ *For more details, refer to [CH 2. Installation Method and Cautions].(p.17)*

5-2) Sensor In

- You can choose the action after sensor in between relay, buzzer sound, pop up, spot pop up. Also you can choose more than one action.



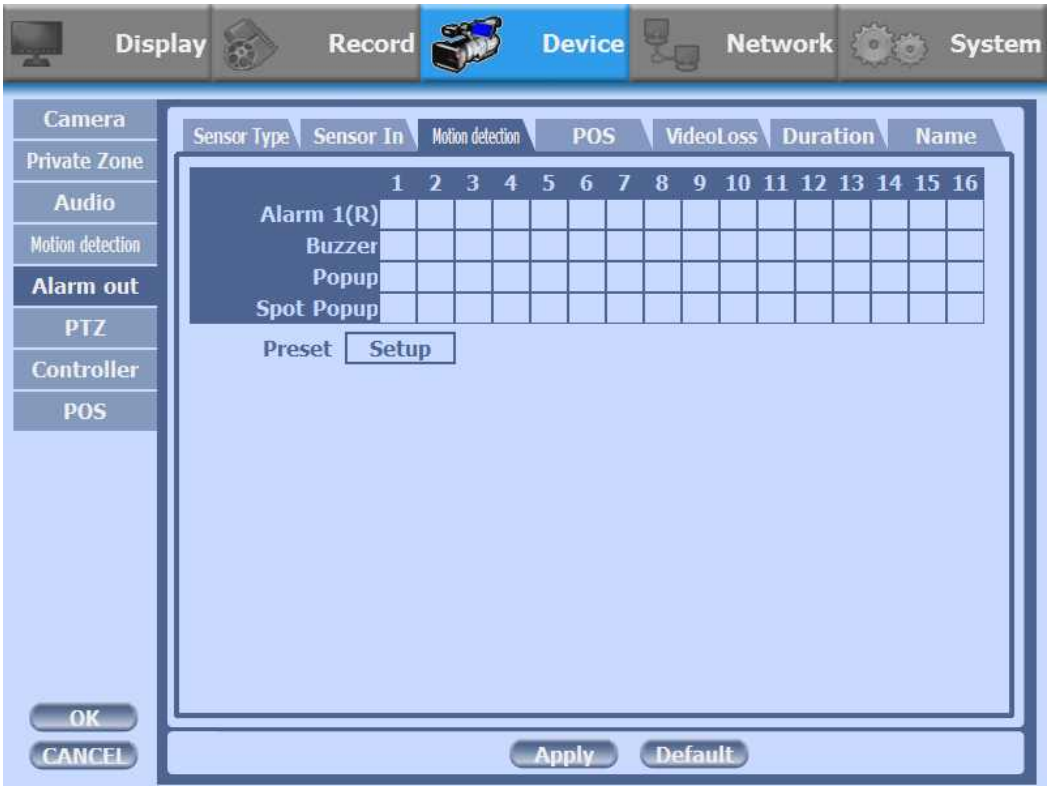
- Choose a sensor connected to a channel.
- If a sensor does not work, please check again the sensor type.
- Alarm 1 is relay out.

- Also you can choose more than one action. Furthermore you can set the preset position number by motion detection. If you push the ‘setup’ you can see the preset screen.

- You can assign the preset position individually by specific motion.

5-3) Motion Detection

- You can choose the action after motion detection between relay, buzzer sound, pop up and spot pop up.

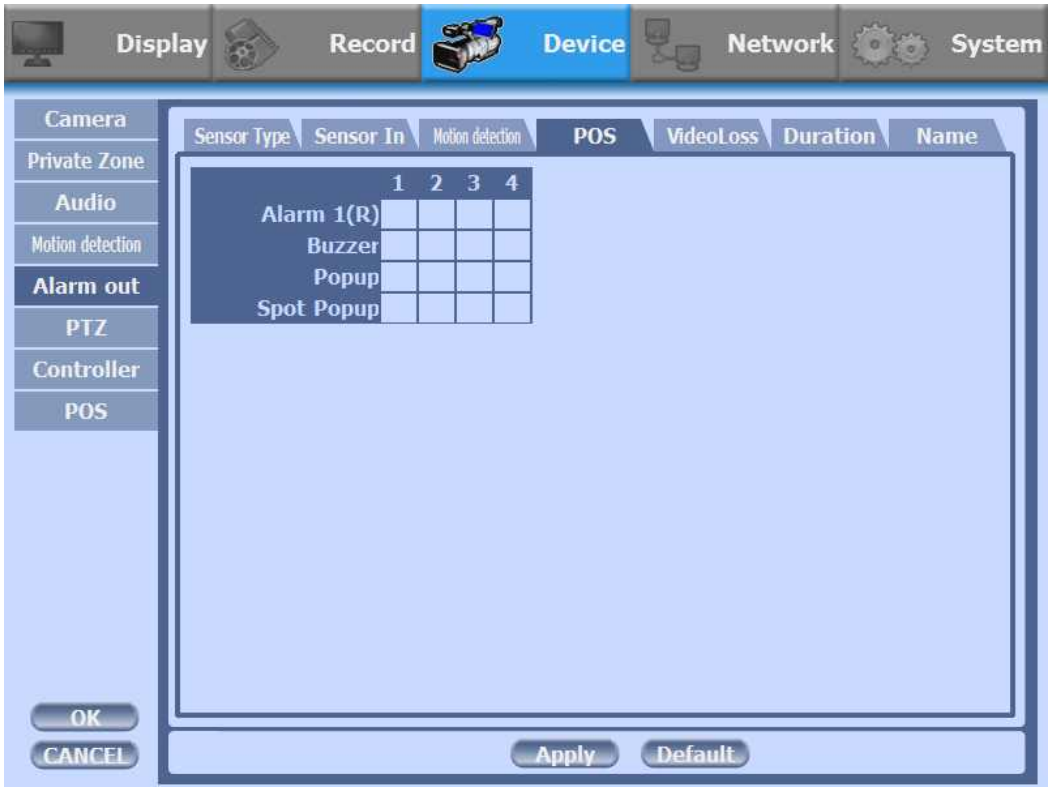


- Also you can choose more than one action. Furthermore you can set the preset position number by motion detection. If you push the 'setup' you can see the preset screen.

- You can assign the preset position individually by specific motion.

5-4) POS

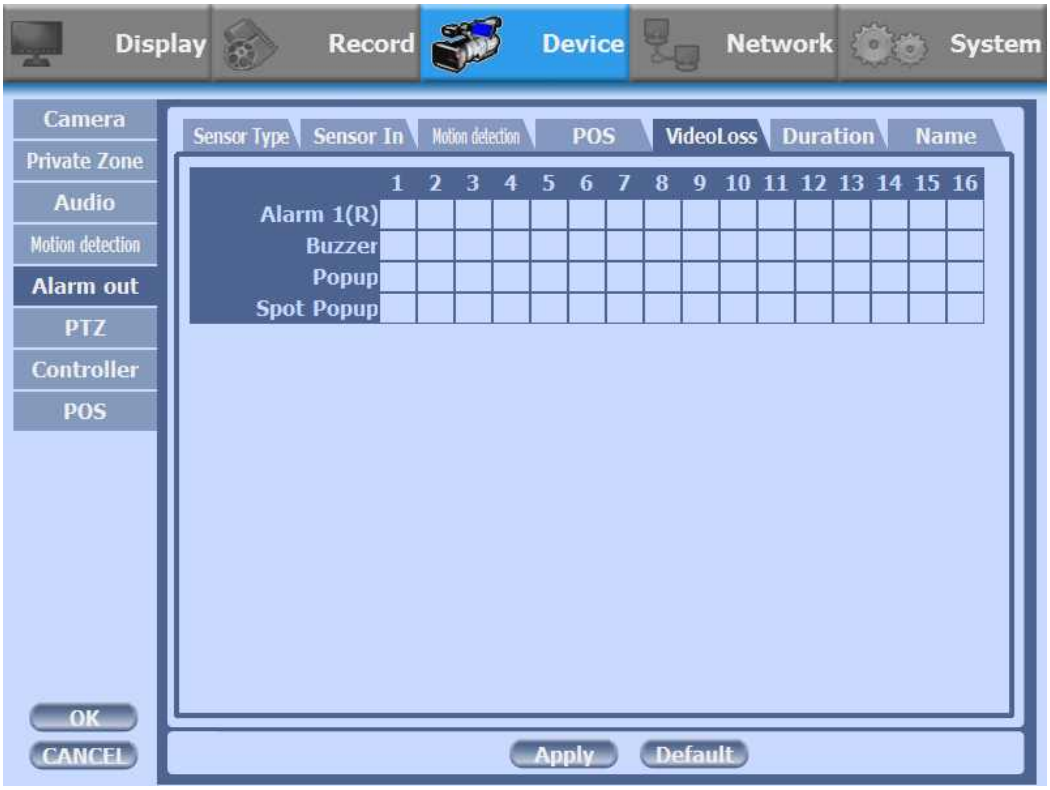
- You can choose the action after POS transaction or video loss between relay, buzzer sound, pop up and spot pop up.



- Also you can choose more than one action.

5-4) Video Loss

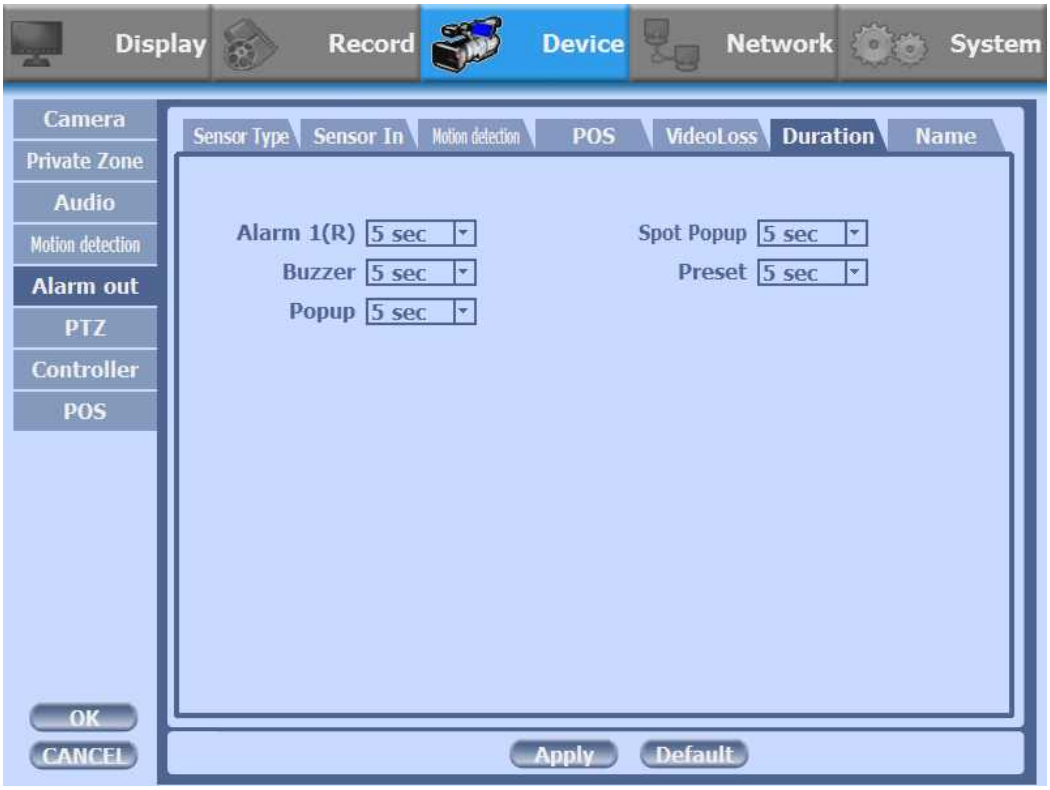
- You can choose the action after motion detection between relay, buzzer sound, pop up and spot pop up.



- Also you can choose more than one action.

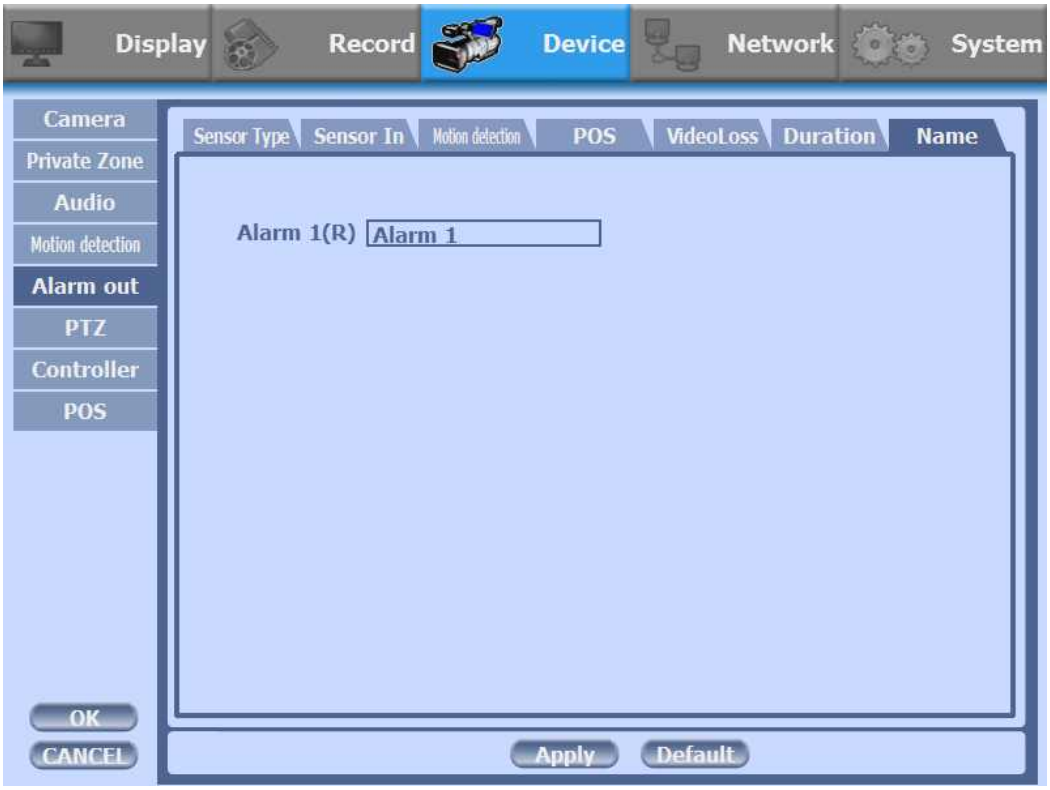
5-4) Duration

- You can choose the duration time from 5 to 60 seconds after motion detection between relay, buzzer sound, pop up, spot pop up and preset.



5-7) Name

- You can set a name of the alarms.



6) PTZ

Configure Pan/Tilt/Zoom camera for control via DVR System and Remote client.

Driver	Choose Driver to be suitable for PAN/TILT Camera manufacturer.
Address	Choose address to be suitable for PAN/TILT Camera manufacturer.
Baudrate	Choose baudrate to be suitable for PAN/TILT Camera manufacturer.

- You have to set Comport value according to the connected camera.

❖ For connection of PAN/TILT Camera Receiver part, refer to user's manual of the related PAN/TILT Camera.

❖ There are more kinds of camera which can be supported. Please contact the tech support to want to know the other cameras.

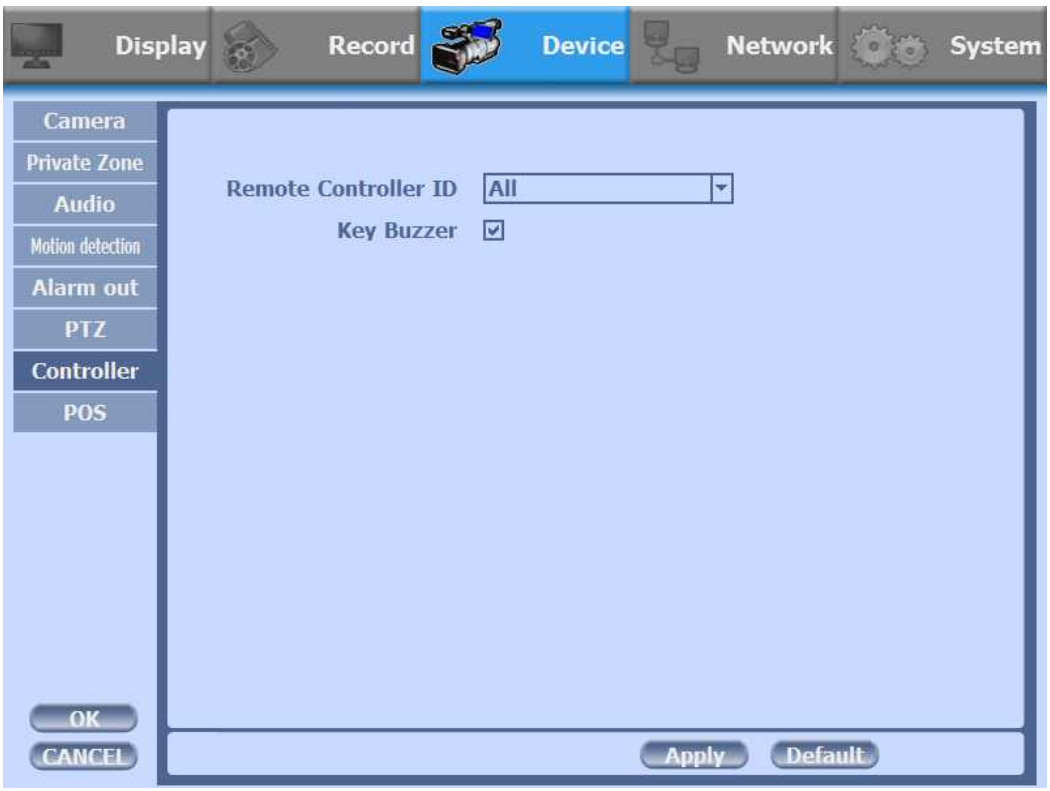
Driver	Baudrate
PELCO D type	2400~9600
PELCO P type	2400
PANASONIC	2400~19200
ORIENTAL	2400(Fixed)
LPT-A100L	9600(Fixed)
LG-SD110	2400~19200

7) Controller

This sets the ID of remote control. If you have many DVRs in the same place, you can control separately the DVR by different remote control ID.

❖ Remote controller ID setup

Use the ID setup and number key to set the ID of remote control on the remote controller. You may check the ID by pressing the remote control key. The ID should be the same between the DVR and remote control.
And you can turn it on/off the key sound.

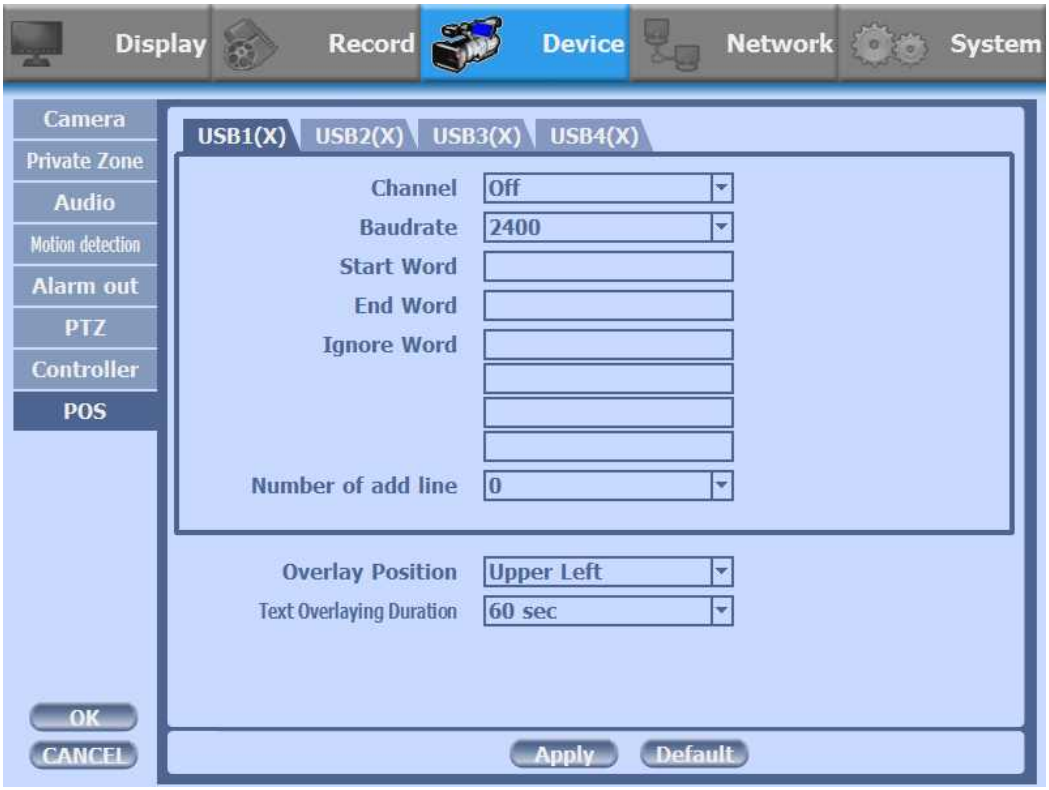


Remote Controller ID	All, 00 ~99
Key Buzzer	ON / OFF

8) POS

This sets the POS interface(text inserter) with the DVR and cash register.

※ If you are using a USB hub, you can use up to 4 USB POS.

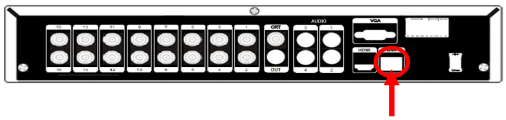


Channel	Select a Channel of POS
Baudrate	Select a baudrate of POS
Start Word	Type a start word of transaction
End Word	Type a end word of transaction. Text will be embedded into the picture between start word and end word.
Ignore Word	Type a word which you want ignore during text insertion.
Number of add line	This will determine the adding line after end word. (0~4)
Overlay Position	This will determine the text position.
Text Overlaying Duration	This will determine how long display the text up to 120 seconds. (60~120 sec)

❖ How to Connect POS

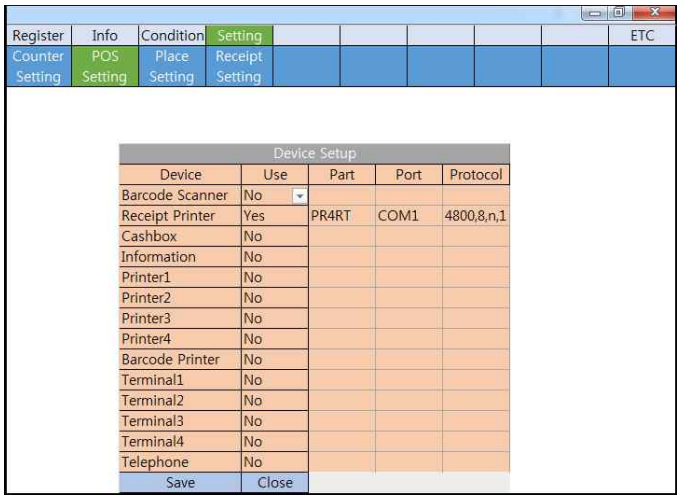
1. Connect the USB USB to RS232 serial cable between POS and DVR.

*POS

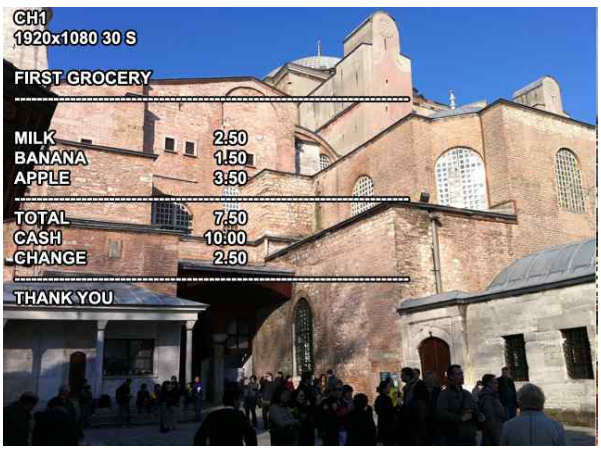


*DVR

2. To set manually, at first you should know the setting values of the POS. You can get the information from the POS setting screen.



3. If your setting is correct, you can see the below DVR screen on transaction. (This is the popup screen. You can set popup in the 'Event In' setup.)

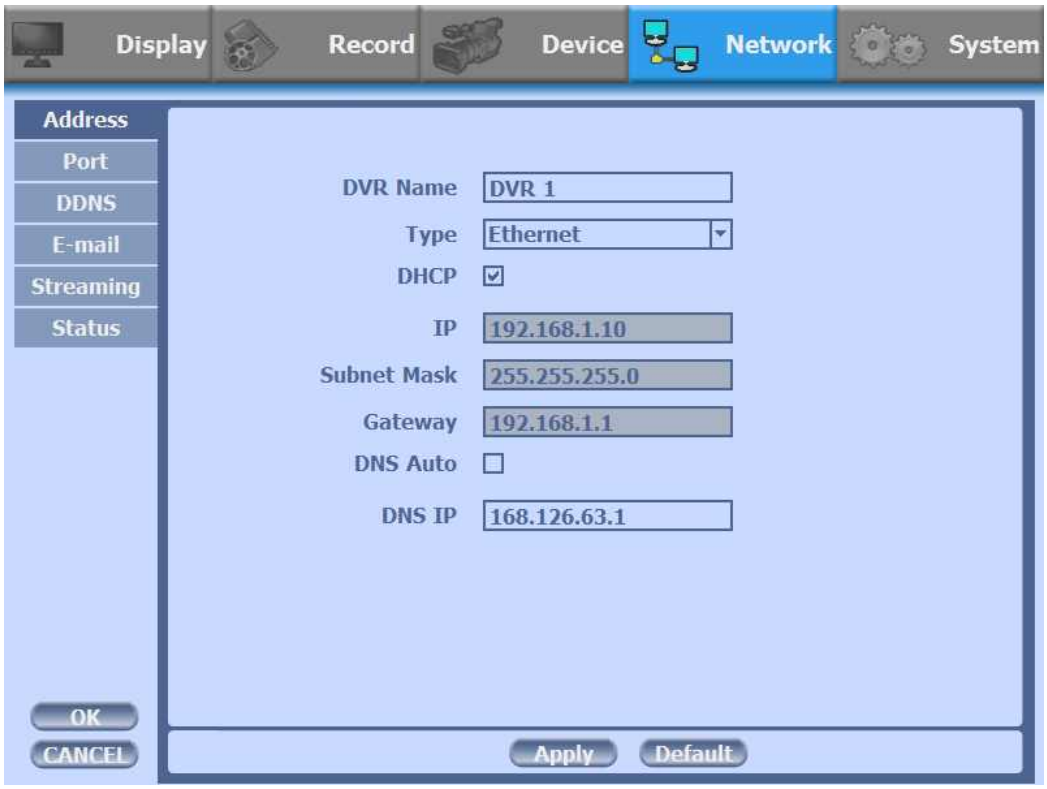


3-4-4. NETWORK

Configure and view Address, Port, DDNS, E-mail, Control and Status settings.

1) Address

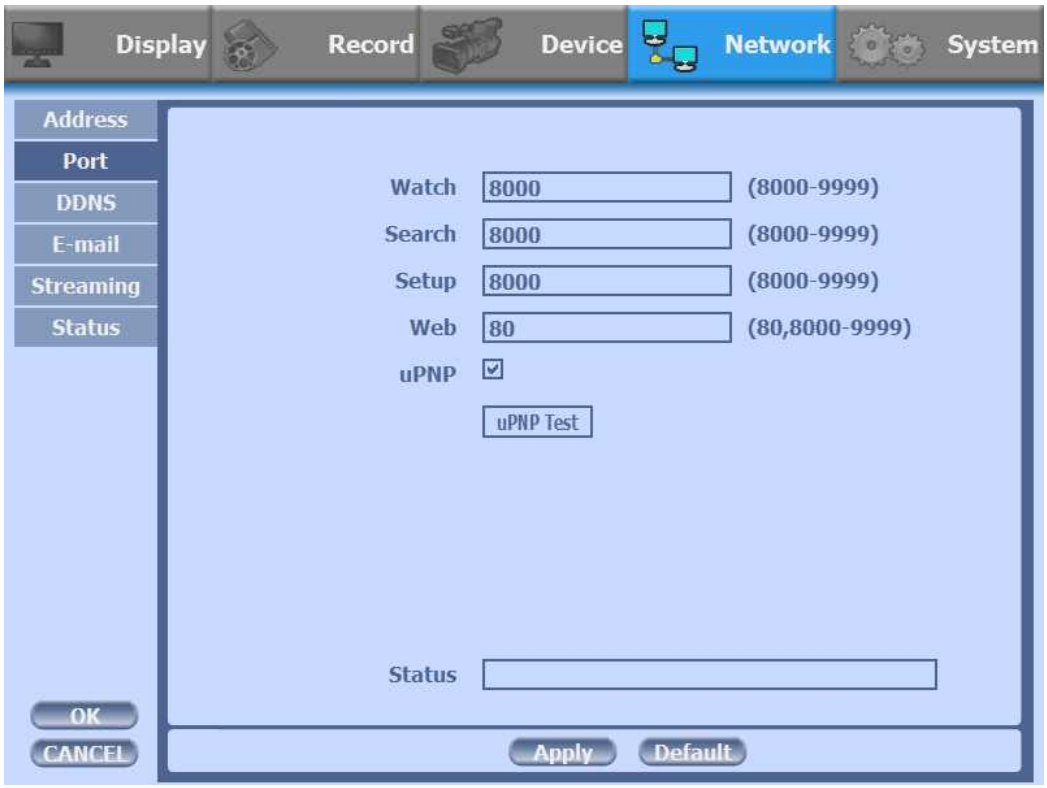
Configure Network information for Remote client connection.



DVR Name	Type the URL of DVR using virtual keyboard.
Type	It can be supported only Ethernet.
DHCP (Dynamic Host Configuration Protocol)	Set whether you want to use DHCP or not (On/Off). If you connect LAN after setting it to On, IP is allocated automatically. If you set it to Off, you have to input IP. DHCP is a protocol that allows managers to manage and allocate IP address centrally.
IP	Type the IP address.
Subnet Mask	Type the subnet mask.
Gateway	Type a gateway.
DNS Auto	If you connect LAN after setting it to On, DNS IP is allocated automatically. If you set it to Off, you have to input DNS IP.
DNS IP	Type the DNS IP.

2) Port

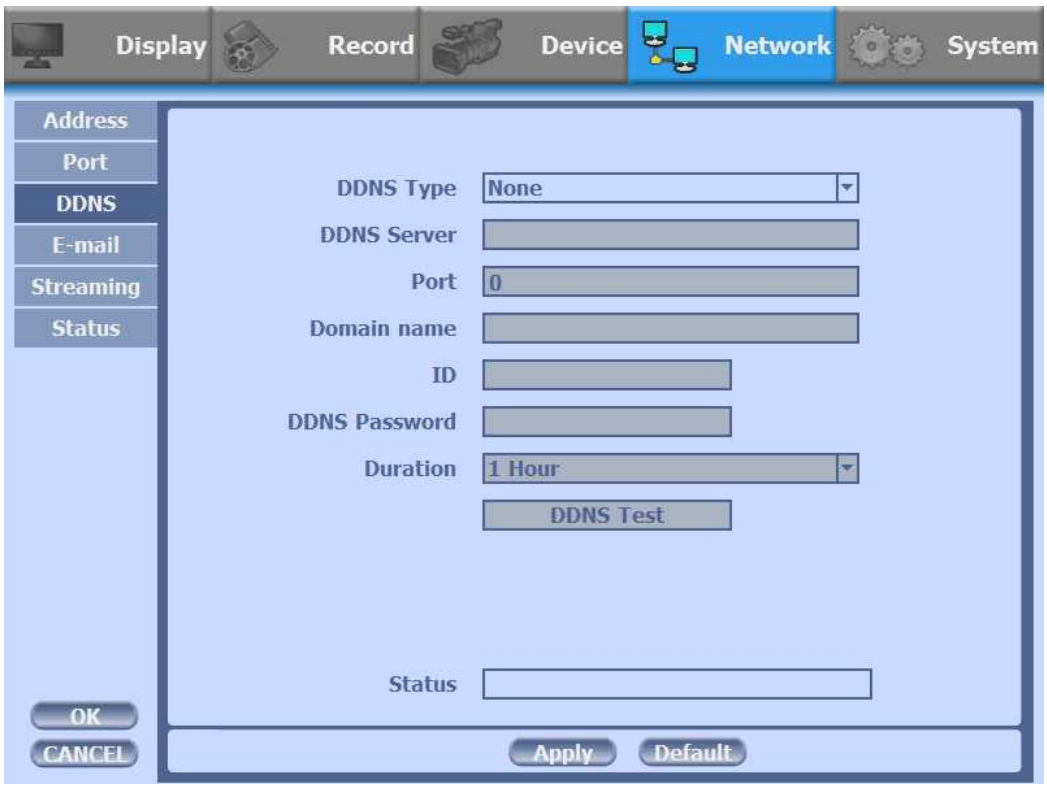
There are 4 kinds of ports for the case such as watch, search, setup and web. You can individually set the port number of the DVR. The default is 8000. You can choose from 8000 to 9999.
If you activate ‘uPNP (Universal plug and play)’ box, DVR connects the router automatically with these port number. You don’t have to setup the router.



Watch	Type the port. (8000~9999)
Search	Type the port. (8000~9999)
Setup	Type the port. (8000~9999)
Web	Type the port. (8000~9999)
uPNP	ON / OFF
uPNP Test	Test uPNP
Status	It shows the test result of uPNP.

3) DDNS

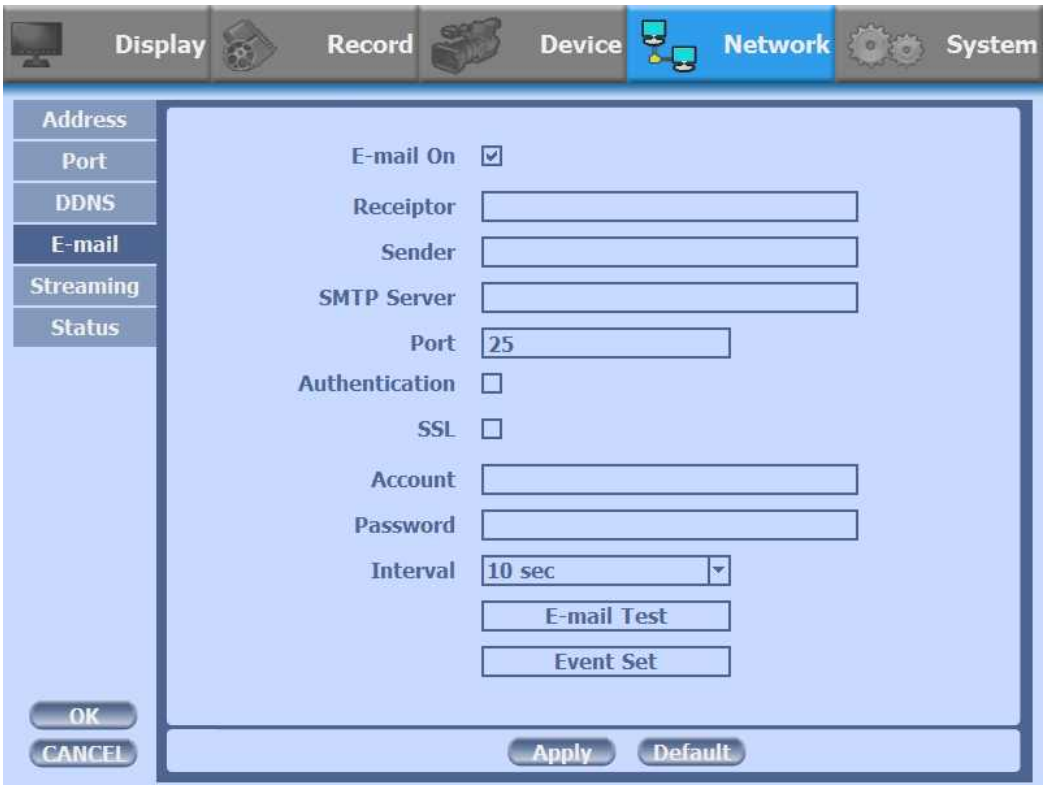
This is the function to automatically change the IP of DVR to URL. This product supports the automatic DDNS service using manufacture's internal server. Also you can choose Dyndns.



DDNS Type	Choose a DDNS type.
DDNS Server	Defend on the DDNS type, it will be auto-typed or disable.
Port	Defend on the DDNS type, it will be auto-typed or disable
Domain name	Type the port of the email account.
ID	Defend on the DDNS type, it will be auto-typed or type the ID of your DDNS.
DDNS Password	type the DDNS password.
Duration	choose the time sync frequency with DDNS server.
DDNS Test	Test your DDNS.

4) E-mail

You can send the event with snapshot by email. Fill all the information correctly and push the 'Email Test'. Also you can select each event individually by 'Event Set'.



Receiptor	Type the email address of the receiptor.
Sender	Type the name of the sender.
SMTP Server	Type the SMTP server of the email account.
Port	Type the port of the email account.
Authentication	Set whether you want to use authentication or not (On/Off).
SSL	Set whether you want to use SSL or not (On/Off).
Account	Type the email account of the sender.
Password	Type the password of the send's email account.
Duration	Set the duration time to send continuous mails.
E-mail Test	Test the email account.
❖ Event Set	Set events

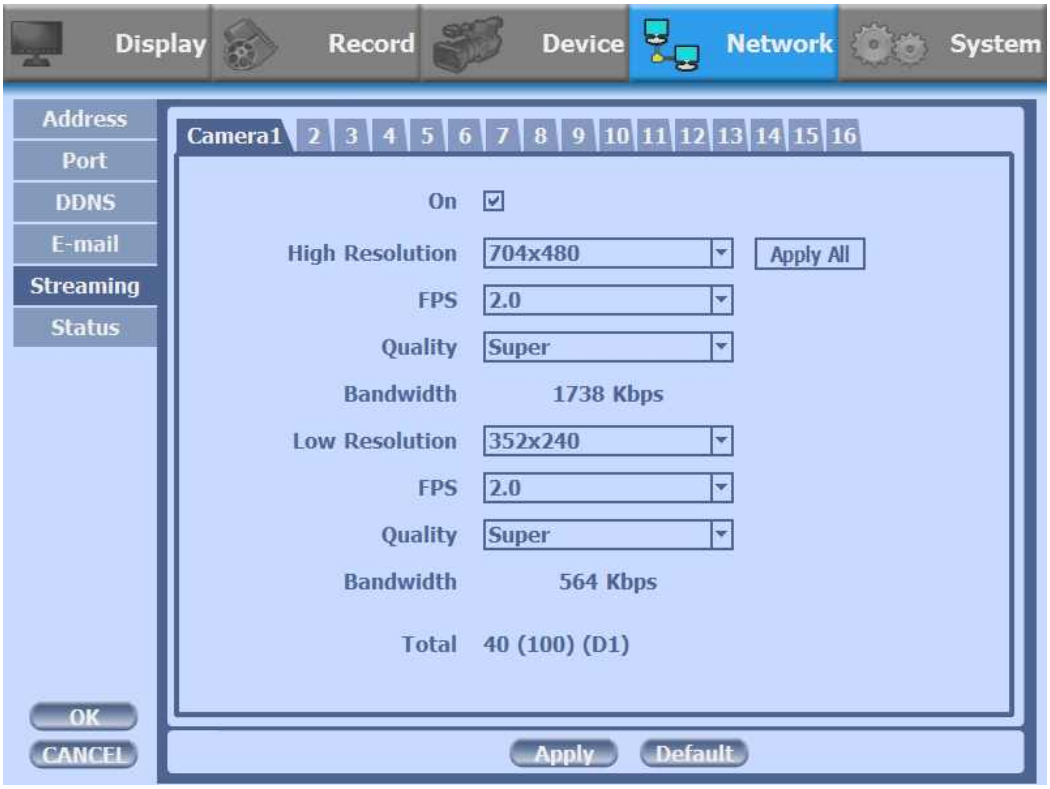
❖ **Event Set**

Set events to send the email.

Sensor	Detect a sensor input.
Motion	Detect a motion detection.
Video Loss	Detect a video loss.
POS	Send inserted text of POS to the email.
S.M.A.R.T.	Send checked HDD S.M.A.R.T result to the email.
System log	Send system log to the email.
Add Image	Send a snapshot of events to the email.

5) Control

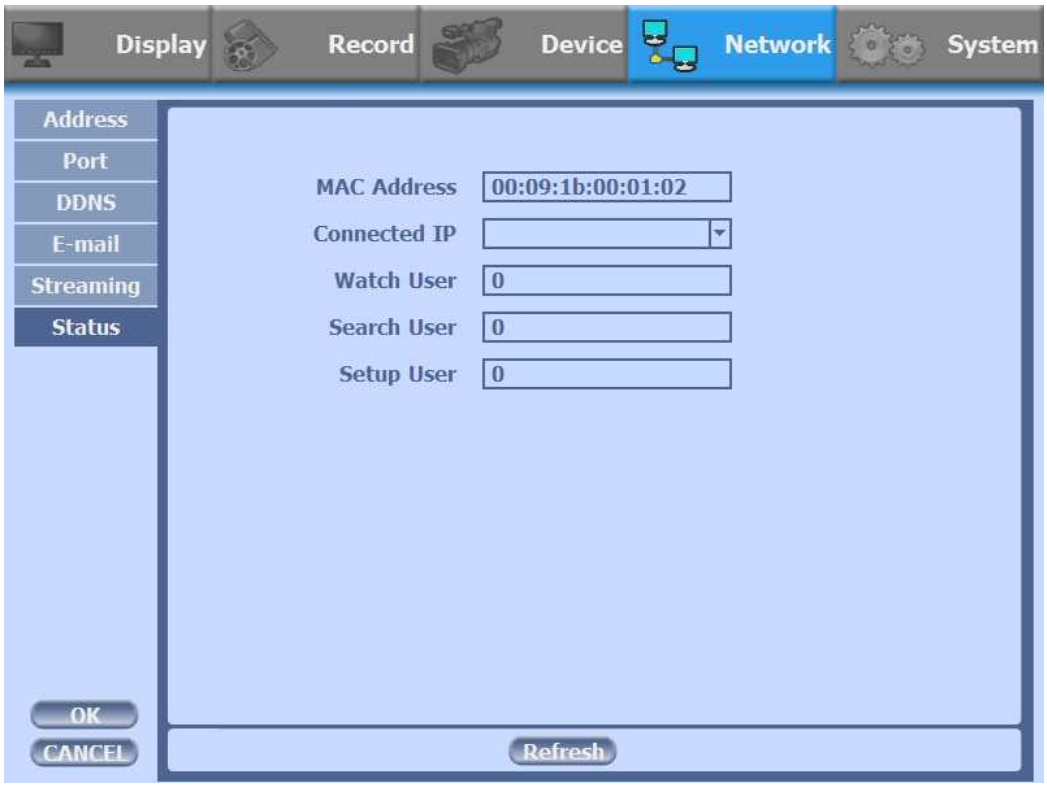
CMS will use the 'High resolution' setting in the case of full screen or quad screen, and will use the 'Low resolution' setting in the case of more than 4 split. You can adjust the number of split to switch from High to Low resolution.



On	Set whether you want to use the channel on CMS or not (On/Off).
High Resolution	It is using the fixed resolution of transmission. (704x480)
FPS	You can adjust the frame rate.(1~30 fps)
Quality	Set picture quality.(Super, High, Med, Low)
Bandwidth	It shows the video transmission of the high resolution.
Low Resolution	It is using the fixed resolution of transmission.(480x256)
FPS	You can adjust the frame rate.(1~30 fps)
Quality	Set picture quality.(Super, High, Med, Low)
Bandwidth	It shows the video transmission of the low resolution.
Total	Total shows total fps of all channels. If total fps is more than supported, it turns red. If it turns red, you need to set a lower resolution or FPS.

6) Status

This shows the information how many connections and what is the action of each connection.

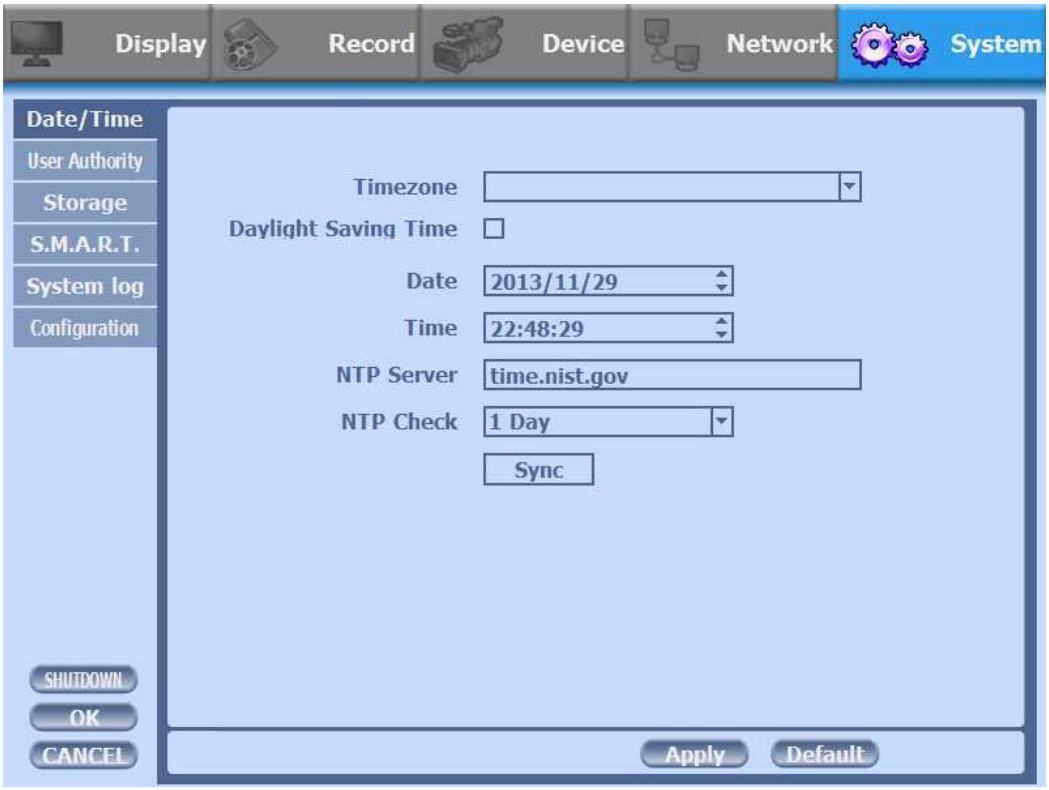


MAC Address	This displays MAC address of DVR.
Connected IP	This displays all the connected IP.
Watch User	This displays how many connection for live viewing.
Search User	This displays how many connection for playback.
Setup User	This displays how many connection for DVR setting.

3-4-5. SYSTEM

Configure and view system Date/Time, User Authority, Storage, System Log and Configuration settings

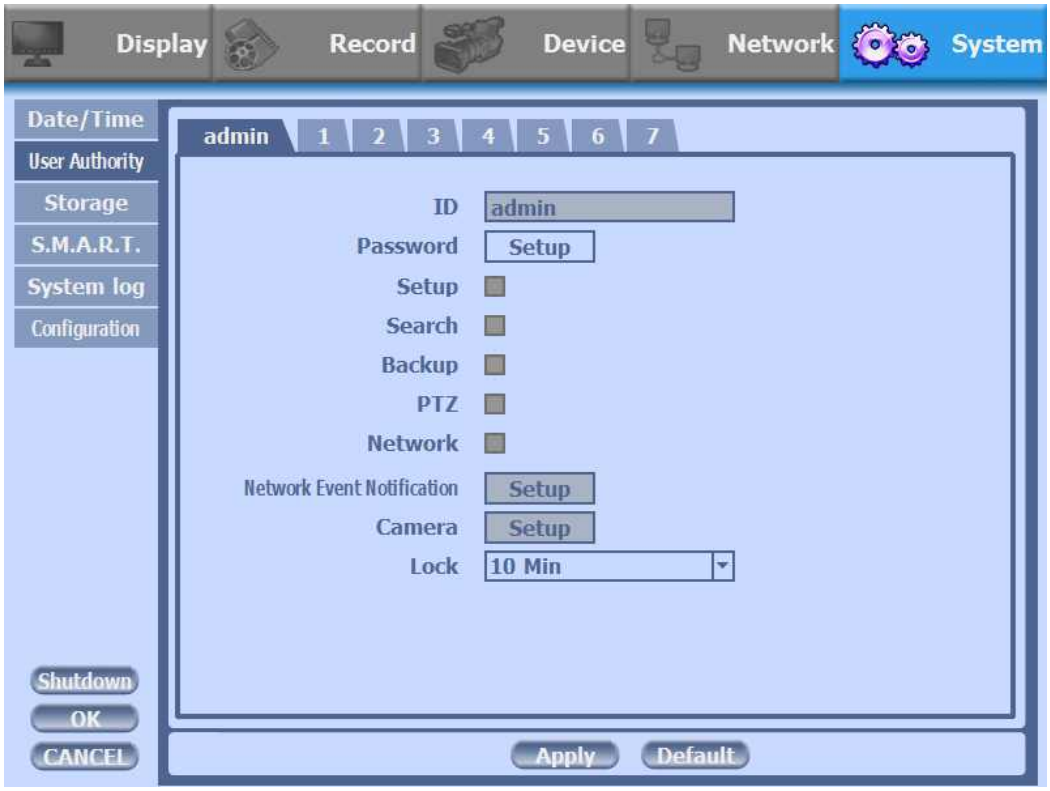
1) Date/Time



Timezone	Choose the time zone of your site. If you using the NTP function, it must be set correctly to your zone.
Daylight Saving Time	It enables to adapt the day light saving time automatically.
Date / Time	This sets product time. Input time by pressing number buttons after moving cursor with direction buttons. Be careful to move to backward. The overlapped data will be deleted with warning message.
NTP (Network Time Protocol) Server	This function is to change the time of DVR automatically via network. Press the 'Enter' button and using the virtual keyboard, type the address of NTP server.
NTP Check	choose the time sync frequency.
Sync	Sync the time and NTP.

2) User Authority

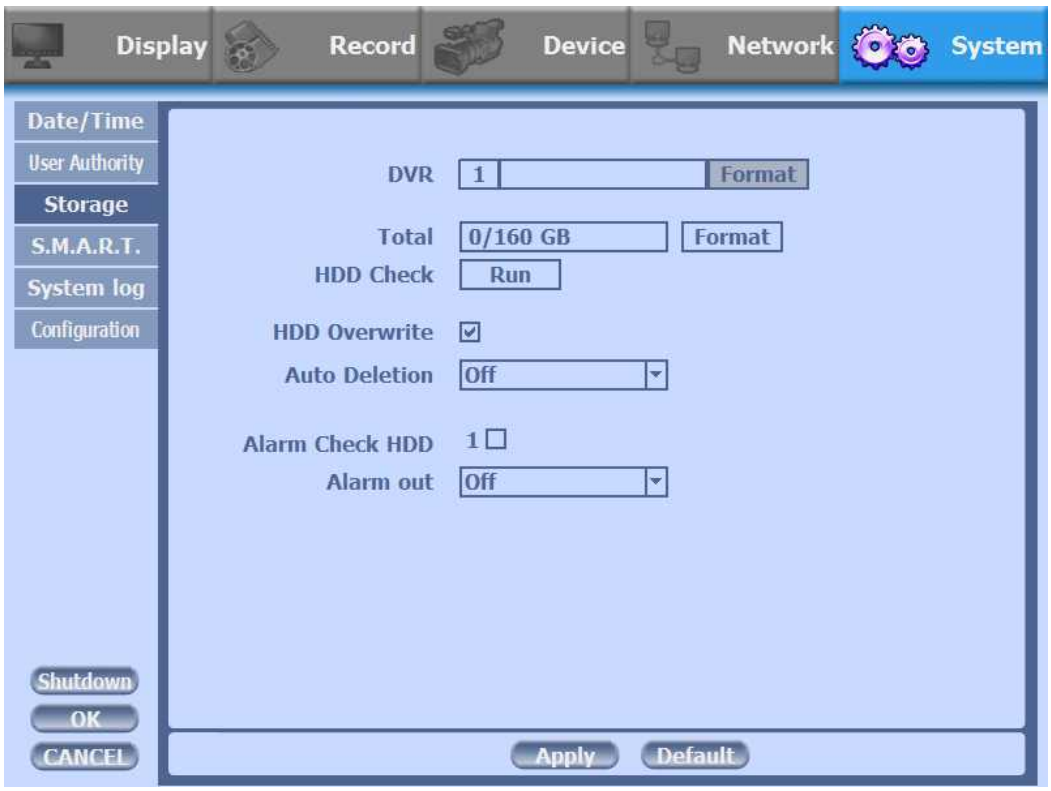
This sets User authority individually. You can give to each users the authorities such as setup, search, backup, PTZ, network and camera control.



ID	Type an ID.
Password	Type a password.
Setup	Authorizes the setting of the system.
Search	Authorizing the search of the system.
Backup	Authorizing backup of the system.
PTZ	Authorizing PTZ of the system.
Network	Authorizing network of the system.
Network Event Notification	Authorizing a network event notification.
Camera	Authorizing a camera.
Lock	select the auto-lock time.(Off, 1~10 min)

3) Storage

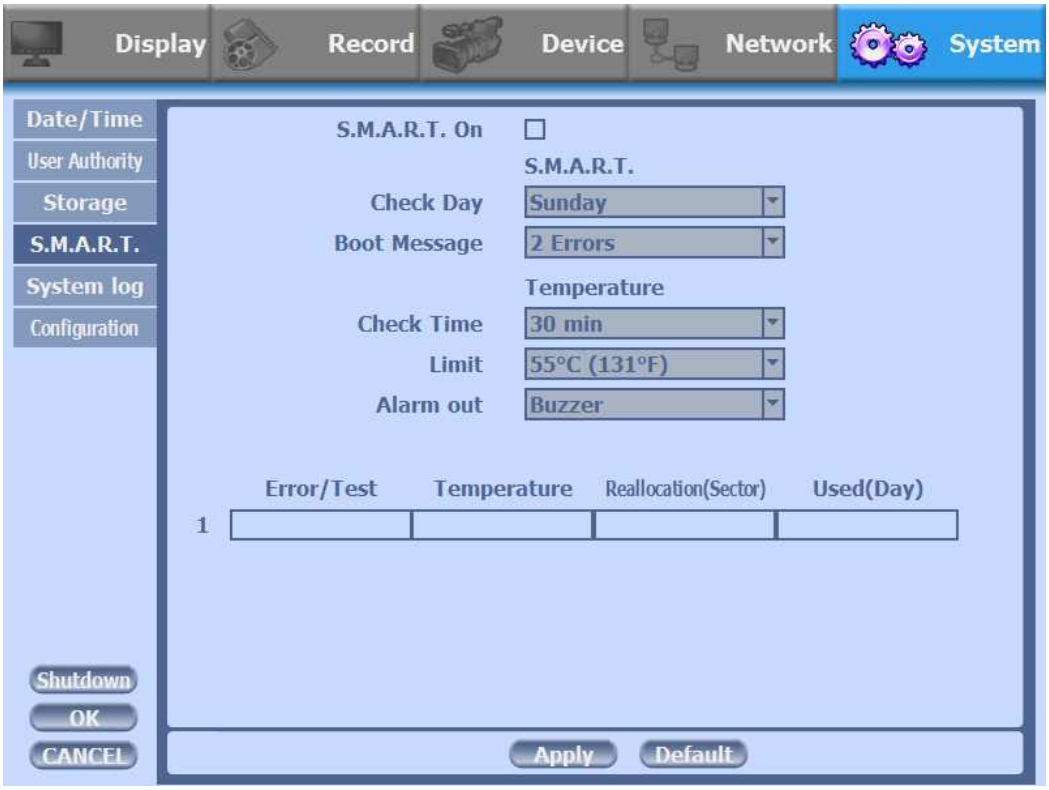
Display the information and usage of the hard disk drives.



Total	Display the HDD usage being used for the product. If you press the 'Enter' button on here, all the hard disk drives will be formatted.
HDD Check	Check the HDD.
HDD Overwrite	Determine whether you want to continue recording if there is no spare saving space at hard disk drives.
Auto Deletion	You can select the holding period of the data. If you choose 'OFF', the DVR keep the maximum data regarding the HDD capacity.
Alarm Check HDD	There is an alarm if there is no HDD or no format. It is useful to check the HDD absence.
Alarm out	You can choose Buzzer or Relay.

4) S.M.A.R.T :Self-Monitoring Analysis and Reporting Technology

This function lets you probe the hard disk drives and investigate the status of the drivers automatically.



S.M.A.R.T.	
S.M.A.R.T. On	Set whether you want to use S.M.A.R.T. or not (On/Off).
Check Day	Determine the date to perform the S.M.A.R.T.
Boot Message	The number of message of showing the errors.
Temperature	
Check Time	Temperature check period.
Limit	The upper tolerance of the hard disk drive temperature.
Alarm out	You can choose Buzzer or Relay

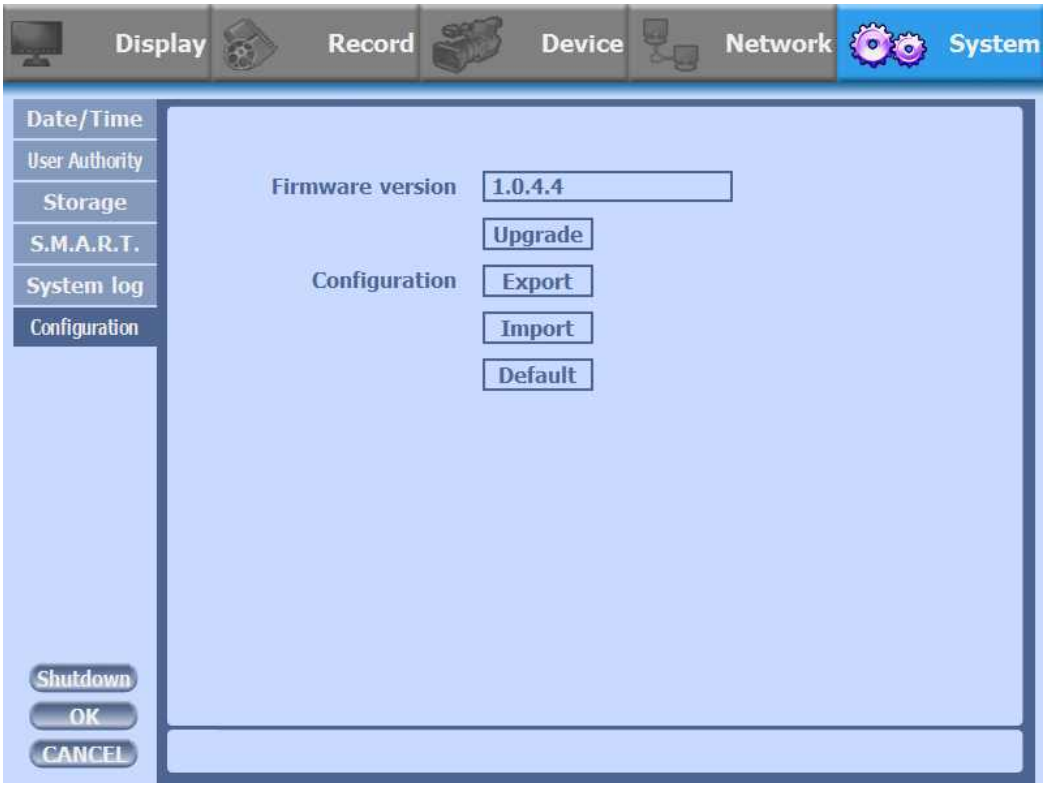
5) System Log

You may view all System administration log from Setup → System → System Log. Also you can export the system log and easily send it to technical support for trouble shooting.

Refresh	Refresh the system log.
Export	Export the system log.

6) Configuration

Shown at the following screen, from Setup → System → Firmware, you may view the current firmware version as well as Upgrade the firmware and additionally, Export, Import, and Default DVR Configuration.



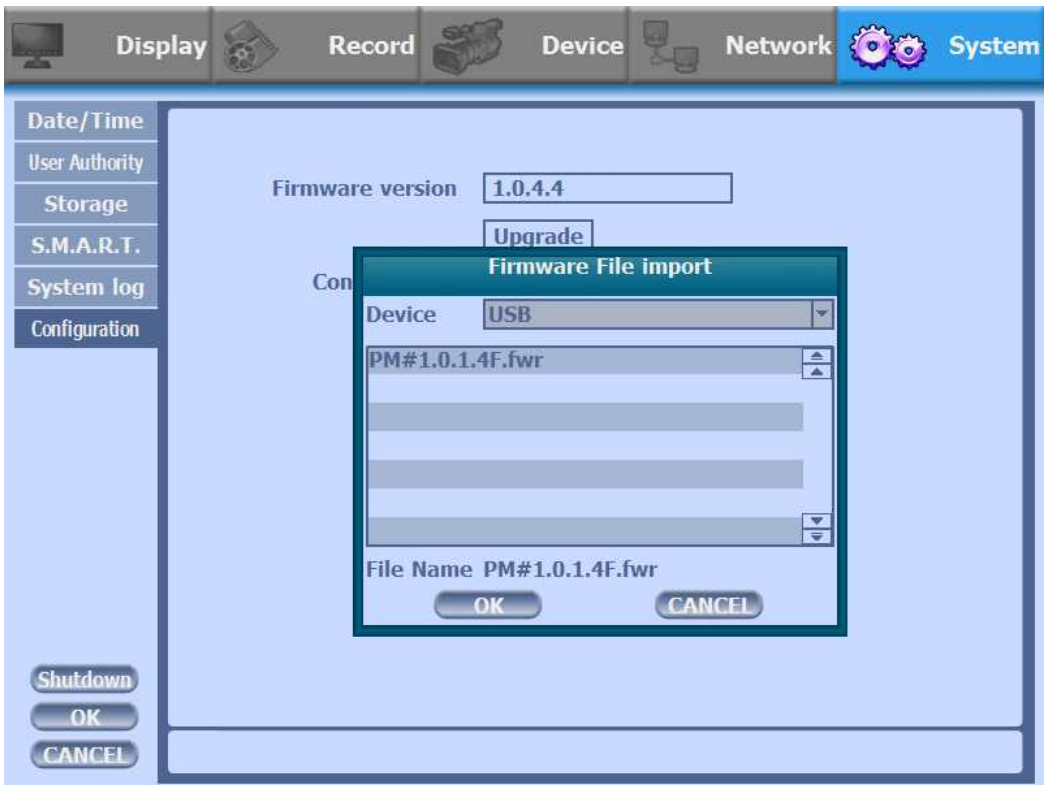
Firmware version	Show the firmware version.
Upgrade	Upgrade the firmware.
Export	Export system settings.
Import	Import system settings.
Default	Return to factory default settings.

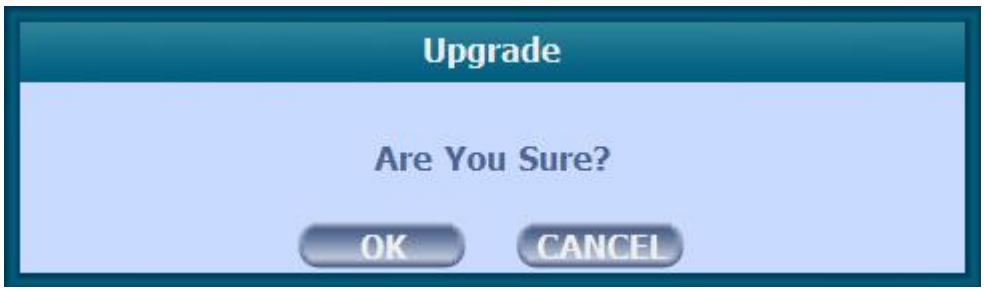
You should connect correctly the USB devices, before you use firmware upgrade, export and import.

3-5. Firmware Upgrade

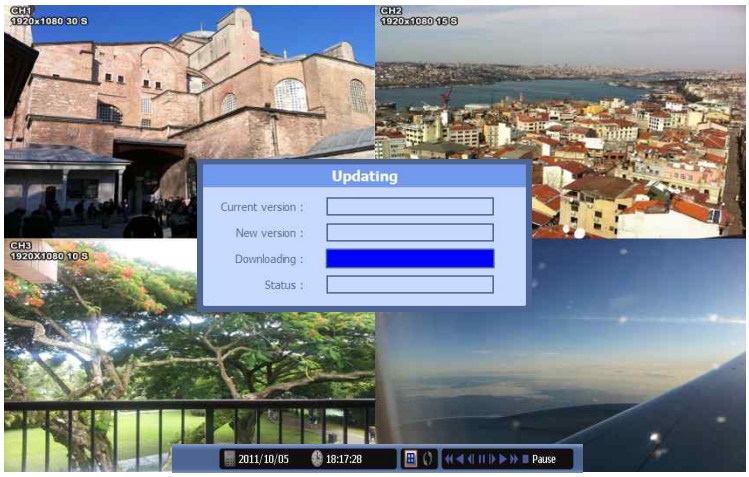
If you want to upgrade, please follow that;

1. Download the latest firmware to USB memory root directory.
2. Put this memory to USB slot of DVR.
3. Choose 'Upgrade' and you can see the below screen will appear.
4. Select the desired file, then choose 'OK'.





If you choose OK, you can see the below download window on the DVR screen.



☞ WARNING!!!

Do not turn off the power during download procedure. If you power off manually, all memory will be deleted !

※ After upgrading, DVR will reboot automatically. Before rebooting, do not operate manually !

Trouble Shooting

Symptom	Checkpoint	Countermeasure
● Can't turn on power.	● Is DVR connected to power supply cable?	● Connect power cable
● There is no image on monitor	● Are DVR and monitor turned on? ● Are cables of DVR connected?.	● Turn on power. ● Connect DVR cable.
● Only INFO OSD is on monitor and no image	● Is camera turned on? ● Are cables of DVR and monitor connected?	● Turn on camera. ● Connect cables of DVR and monitor.
● There is Video Loss message.	● Is NTSC/PAL setting normal? ● Is connection between DVR and camera normal?	● Check whether NTSC/PAL setting is SETUP properly ● Check whether DVR and camera are connected properly
● Can't search with Client Program.	● Isn't another user using same IP?	● Use it after another use finishes using it. If another user is searching DVR remotely with same IP, you can not search.
●Motion Detection doesn't work well	● Isn't it too bright or too dark?	● Increase Motion Detection sensitivity. ● Install camera closer.
● There are differences between Live screen and actual condition during remote monitoring	● Isn't camera installed too far away? .	● Since it buffers Live images, there might be changes with actual condition. (1~2 sec)
● Live doesn't work well in remote monitoring	● Is it set to True Color? ● Are PC specifications and VGA Card specifications are appropriate?	● Refer to recommended Client PC specifications in 4-1 Installing Client Program?